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The Competition Question Re-opened.

PRINTED in another column will be found a circular which has been addressed by one of the Fellows of the Institute of Architects to his compeers, inviting renewed attention to the evils of the competition system, and stating his intention of taking action on the subject during the ensuing session of the Institute, provided he can obtain the support of the general body of the Fellows in doing so.

The thanks of the profession are certainly due to any member who, like Mr. Porter, has the spirit to endeavour to inaugurate a re-consideration of this subject in the hope of lessening or removing the very serious disadvantages to the architectural profession and to modern architecture which the system of competition entails,—at all events, in the way in which it is now generally carried out, and in the proportions which it has assumed of late years. We have so often and strongly commented on this, that none of our readers will doubt that we should be in the main in sympathy with the objects aimed at in Mr. Porter's circular, and should be disposed to give all the support in our power to any such attempt to lead to a systematic action which may at least result in putting architectural competitions on a footing less unfair to the profession and less injurious to the interest of the art of architecture than they now are. At the same time, it is necessary to look carefully at both sides of the question before deciding on the line which can advantageously be taken on the subject, or hurriedly endorsing a view of it which might be found in the end impracticable.

The aspect of the question has changed very much since the time when the idea of inviting architects to compete for the privilege of carrying out a projected building first recommended itself to the non-professional mind. There would seem to have been three phases in the modern architectural competition system. The earliest was that of which we noticed records in some recently published biographical memoirs. Competition was then in a rough and crude state. There was no pretence of anonymous competing, or of unbiassed judgment on the part of the judges or clients. On the contrary, the open aim of the architect then seems, in most cases, to have been to bias the judgment of the committee or client in every possible way, and to obtain the work by special pleading and the exercise of personal influence with the most powerful members of the committee for whom the work was to be done. Subsequently, competition became recognised in higher quarters as a means of obtaining the best available ability for carrying out large and important buildings, and the best plan and design; with the ostensible profession (at all events) of unbiassed choice based entirely on the merits of the design submitted, and not on the personal influence of any competitor. From being, however, a rather exceptional course to which recurrence was had in the case of large and important works mainly, it has now come to be the rule rather than the exception with all public or semi-public bodies, large or small, important or contemptible, who want a new building. Clients who, in a private capacity, have occasion to employ an architect,—men who want to build dwelling-houses, for instance, still keep clear of it, partly because it would involve a good deal of time and trouble, partly because there still is in the minds of English gentlemen (in their non-official dealings) a certain sense of fairness in their relations with professional men, and a feeling that there would be something derogatory to their own dignity in inciting competition for their dwelling-houses, pitting a number of men against each other in the matter, and giving all but one their labour for their pains. Besides, a private person usually has some reason for employing one special architect; he goes to the same architect whom other members of his family have employed, as he goes to the family solicitor; or he has a friend in the profession whom he prefers to deal with rather than a stranger; or he has a certain definite taste of his own about architecture and decoration and furniture, and goes to the man whom he thinks best able to satisfy his own tastes. Formerly, of course, it might have been added, too, that an ordinary dwelling-house was too small a thing to be worth getting up a competition for; but this can hardly now be regarded as any reason against such a proceeding; for we now constantly see advertisements inviting competitions for buildings of no more size or importance than an average dwelling-house, small vestry-halls, village schools, and other such structures; those who are entrusted with the conduct of such works appearing to think that they would be wanting in public duty if they neglected to call upon all the architectural profession to vie with one another in producing the best plan and design, with certainty of absolute loss to all but one of the number, and no absolute certainty of satisfaction even to the successful candidate. As to the unfairness and ignorance with which such competitions are usually conducted, the dishonest partiality often shown, in spite of the most explicit professions of impartiality, the parsimonious character of the premiums offered, the continually-increasing demands, in the way of number and elaboration of drawings, made upon the unfortunate competitors, and the frequently totally unsatisfactory result in regard to the object nominally aimed at, the procuring of the best possible design, it is too old a story to require further comment here.

It is, however, useless to expect that there will be any improvement in this state of things as long as those who advertise competitions on the most grudging and unfair terms find so many gudgeons willing to swallow the bait. However unfair are the terms of a competition, however unreasonable the demands made, however they may be animadverted upon in our own columns either editorially or by indignant correspondents, it appears that no terms are so bad or so mean that there will not be found a considerable number of men ready to close with them: and though in the worst cases we may assume that the advertisers do not obtain the response of any leading men in the profession, there have not been wanting instances in which leading men, and in large numbers, have been found willing to enter into competitions, the advertised conditions of which were anything but what men of high professional standing might have claimed the right to expect. The explanation, of course, is that each man thinks that he has the chance of winning "the prize," and that if won, it is worth the drawbacks. But they do not seem at all alive to the fact that they are in such a case winning at the cost of general injury to the profession at large, which, if there were a proper *esprit de corps* among architects, ought in itself to be a serious consideration, even apart from the probability that this same injury may recoil upon themselves in other instances.

It is, in fact, just this want of *esprit de corps* which is at the bottom of a great deal of the mischief. The aim of Mr. Porter's circular seems to be in part to create an *esprit de corps* on this matter on the part of at least the leading members of the profession, most of whom are Fellows of the Institute; and perhaps all will be shortly, for we have recently observed that some of those who have for some time stood aloof from the representative body of architects have thought better of the matter and enrolled themselves. He wishes to induce all the Fellows to agree formally that they will enter into no competitions in which the competitors are not to be remunerated for the time and labour expended on the drawings. This, of course, means that they will enter into no open competitions. Whether or not it will be possible to induce all the body of Fellows to agree on such a determination we do not undertake to say; all we will commit ourselves to on that head, at present, is, that if a large majority of the Fellows are willing to do so, or to bind themselves to any reasonable course in order to limit the waste of labour in competitions, it appears to us that it would be an absolute moral duty on the part of the small minority to sink their differences and join in the general movement. The want of cohesion and joint action in the profession is a great source of weakness and loss of dignity, and is a constant subject of comment, of no agreeable kind, on the part of outsiders. No body of professional

men can expect to be fully respected who show no capacity for combined movement or for postponing the occasional advantage of individuals to the general good.

Granting that such an agreement could be come to, what would be its effect on the competition system? That depends a good deal on how far the younger and less distinguished members of the profession will follow the lead of the Institute Fellows. If they do so to any large extent, it will follow, as Mr. Porter implies, that architectural competition will be pretty well knocked on the head. If they do not, the result will be this,—that people who wish to have a competition will know that they cannot obtain the services of the leading architects without paying for them all, and they must in that case select a limited number, and this would probably be the course followed in regard to some of the larger buildings, for which open competitions are now advertised. Those who do not care to pay competitors, may count on the chance of unearthing a new genius among the younger and unknown men who have not cared to limit themselves by any condition of the sort.

If there were a probability that this latter result would often follow, it would not, we must admit, be a very consoling thing for the leading men who had upheld the dignity of the profession by refusing to compete, to see the work taken from them by an unknown man who had thus found the opportunity to make himself known. This has happened at times; we must say, however, that we regard it as an exceptional chance. It is very seldom, indeed, that a large competition, when properly conducted by competent judges, is gained by any one who had been entirely unknown previously.

We do not see, therefore, that this consideration need deter Fellows of the Institute from the very great advantage in regard to dignity in the eyes of the public, and the aggregate remuneration of the profession generally, which they would go far to secure by adopting such a course as that suggested in the circular referred to. But it must not, on the other hand, be forgotten that to close architectural competition entirely would remove one chance of gaining distinction from rising men who have their names to make. We will suggest one or two ways in which this difficulty might, perhaps, be met. We should naturally conclude that if the rule of payment for competition drawings were adopted, competitions on this footing would only be resorted to in the case of large and important public buildings. The committee who had to select the competitors would in that case almost certainly select men of known ability. In the case of important buildings, however, a committee might make it optional for men who wished to be allowed to compete to send a small preliminary sketch showing their general idea, from which it might be judged whether they could advantageously be invited to join in the competition. In the case of the Manchester Townhall, which is certainly one of the most successful results of a competition, it will be remembered that this plan was frankly adopted at the outset, and there was an open sketch competition, and then a limited competition from among the few selected as best from these, each of whom was paid a fair sum for the preparation of his drawings. And this idea seems to us to suggest a way out of the dilemma we are in, between allowing open competition to go on at the present ruinous rate, and stopping competition altogether. Members of the Institute might agree to decline to send complete drawings except for a fair remuneration, or they might decline to furnish, in an open competition, anything more than sketches sufficient to show their general idea, the scale and extent of which sketches might be limited by a general definition. Indeed, it is worth considering whether the idea of restricting competition drawings to sketches is not itself the best way out of the difficulty. It is a point specially worth considering, because the tendency of the promoters of competitions is to ask for more and more; they are not satisfied now without demanding working drawings and specifications, and minute estimates; and, as we recently said in reference to an important competition, a decided stand ought to be made against this, and a summary stop put to it.

There are two other points which we would press for consideration, if the matter is formally taken up by the Institute,—two stipulations which ought to be universally insisted upon. One is that the promoters of the competition bind themselves to employ a competent professional adviser, or, in the case of national works, a properly constituted jury, and to abide by their judgment: a point which we have urged so often that it is unnecessary to say anything more on the subject here. The other is that in no case should the premium of the selected architect be "merged in the commission." The premium is paid, or ought to be considered as paid, as a remuneration for the labour of the competition drawings; which, it may be said, are in no case available as working drawings, and cannot be so, because to make efficient working drawings the architect must be possessed of many details which he cannot possibly obtain till he comes into regular business relations with his clients, and must have studied and surveyed the site with a minuteness which is never possible for a mere "intending competitor." To merge the premium in the commission is, therefore, only genteel robbery of the successful architect at the outset of the work; and even if the premium is paid in addition, it rarely, under existing circumstances, really covers the cost of producing the drawings. This latter objection, however, would be lessened or removed if it were understood that the promoters of a competition were not to expect or demand working drawings, or anything approaching working drawings in elaboration.

One word more as to a proposition tacked on in a tentative note to the circular we have been referring to; the suggestion, namely, that the Institute might well at the same time consider the propriety of raising the recognised rate of commission from 5 to 6 per cent. We do not think that architecture is an over-paid profession, but we should not recommend opening that question at present. There has been a great deal of time and trouble expended in formulating and obtaining recognition of a scale of charges which is now fairly satisfactory, and it would look decidedly bad if the Institute were already to set about undoing its own work in this respect. Indeed, we feel certain that it would not be listened to by a majority either in the Council or in a general meeting. There is a much simpler way out of the matter, for those architects who have established such a reputation as to be in demand. The 5 per cent. is a minimum commission; there is nothing to prevent any architect who finds the demand for his services increasing, from demanding in time a higher per-centage. In fact, it would be better for modern architecture if some of our most successful men, who nominally carry out more buildings than they can ever really attend to properly, were to raise their terms to the point which they find the demand on them will justify, and pay themselves by higher terms rather than by multiplying commissions. The more there is free-trade in this matter the better, above the sacred level of 5 per cent. The latter is merely a minimum; and for architects of no more than average distinction and average ability it appears a fair remuneration, and (what is more to the purpose) the public are not disposed to increase it at present, except in return for unusual ability or unusual services.

The Crystal Palace.—Several schemes have been projected of late years with the view of increasing the value and usefulness of this undertaking. Mr. John Orrell Lever has now made a series of proposals for the restoration of the company to its former *prestige* and to a sound financial condition. Mr. Lever's proposals are three in number, and, in short, are:—First, to purchase the palace and property of the company for 205,000*l.*, the market price of the stock, subject to the further payment of 19,600*l.* a year for debenture interest; secondly, to lease the palace and property for a period of 7, 14, or 21 years, at a rental of 40,000*l.* a year, payable quarterly, in advance. This offer, if accepted, would pay the full interest on the six per cent. debenture and the seven per cent. preference capital, besides five per cent. to the holders of the "A" stock, and Mr. Lever also proposes to give season tickets to those who hold either 100*l.* "A" stock or 500*l.* "B" stock. His third offer is the same as No. 2, except that instead of Mr. Lever being personally the lessee, he would at his own cost form a new lessee company, with an influential and powerful council of administration. We earnestly recommend unanimity. A house divided against itself cannot stand.

THE EDUCATION QUESTION,

WITH SPECIAL VIEW TO THE ARCHITECT.

INDICATIONS rise up on every side that liberal education must prepare to consider itself in a state of siege. We may take our definition of liberal education from an ancient as inclusive of whatever instruction is appropriate for what he calls a free, that is, an independent, man, and has a value which is quite apart from conducing to a return in money. There may be the greatest difference of opinion, as to the studies which should rightly be allowed a place within this wide term of appropriateness, and there is not an established scheme or curriculum that we do not find challenged from day to day as open to severe criticism, for what it overdoes or what it neglects entirely. The scientists are the chief assailants, eager to replace large sections of *belles lettres* by ologies, the study of words by that of things,—as if words were not very important things,—and at least as earnest to get a footing for the very latest hypotheses, which rivals aver are still on their probation, as for what soundly and safely systematised knowledge is their inheritance from scientific predecessors. But other assailants from the scientific platform are still more ambitious, and each from his own place of standing is urgent that every student should devote himself all but entirely to a single study, and become, above all things, an accomplished specialist. All, however, seem willing to join hands, in the first place, to force the ologies to the uttermost upon Universities in one direction and Board schools at the other, whatever other studies may suffer, and if the victims happen to be Greek and Latin literature, *vile damnum*, the regret will be slightest of all.

The movement is passing over society like a wave, and those who are interested in architecture especially, to leave the other arts aside, cannot afford or will not do wisely to disregard it and to omit forming a distinct opinion as to its truth or mischievousness. The architect as appropriately educated and accomplished is remote, indeed, from a rigid specialist. He is in intimate relation to various sciences, to various arts of every grade of distinction, and to society, even most of all in those of its ranks where the liberal education which is in question is or should be most rife. The controversies, therefore, which are proceeding are between our friends. Science, our ally, has engaged in something like a quarrel, which, from our sympathy with both parties, we prefer to regard as a misunderstanding only, with elegant literature. Fortunately we are not in the dilemma of having to renounce Plato, *amicus* though he be, in allegiance to Truth as *magis amicus*. Our Platos are with us, happily, and may be counted on to prove that Veritas is of their own mind, if that be possible, or else, though it may not be in consequence of our own arguments, to alter their own minds, and come over to the side of Veritas.

Such, then, is the case; the Universities are under pressure, which is not all from without, to relax their demands upon graduates in respect of classical attainments, of Greek more particularly; and the Physical Sciences are waiting eager at their gates to seize upon whatever sections of time and remnants of energy may thus be set free for other distribution. Science here is a general term for a confederation the members of which may be expected to fall to some contention among themselves when the distribution of the spoil is imminent. So the pupils of the Board schools are attracting a general cross-fire from some who, like the friends and allies of Faulconbridge, are likely enough in headstrong co-operation "to shoot into each other's mouth." Standards 1, 2, 3, and so forth are to be mulcted in favour of sciences which are growing much faster than the growth of the pupils. Hodge and his friends and his sisters are to be imbued with a theory of the deposition of that dew which it is their lot in life, "to brush with hasty steps away to meet the sun upon the upland lawn." If this is to be done, the sooner the better; for recent signs imply that the tolerably long lease of one theory of dew has nearly expired, and the scientists are likely to disagree about granting another.

The fire is manifestly spreading all round, and it is coming so close and becoming so warm that it may be as well to anticipate its spreading further; it is not too soon to review some considerations as to how far Liberal education as distinguished from Professional can or should be pressed by the votary of architecture. We

limit the question to this art, though the other fine arts are equally involved, and the subject becomes more manageable if we are content to cut off a section from its infinity by bearing in mind chiefly the subject of classical study. There are many reasons for taking the discussion upon the basis of this art. In its practical relations it comes into closest contact both with the most purely mechanical arts and artisans, and then of necessity is involved in personal dealings with mankind, which, do what it will, are on a par at last with the merest commercial bargaining; on the other hand, it passes through the scale of the arts up to the most elevated and refined; its exercise is bound up with a control which is much the same as that of a commander of men, with discrimination both of talent and character in choice alike of instruments and allies, and then with the familiar social amenities and accomplishments which put one at ease, and even at advantage, in intercourse with men at the very summit of culture as well as at adjacent levels. So much is required here that the words of Rasselas may be suggested, "Enough! thou hast convinced me it is impossible ever to be *an architect*; tell me now," &c. However, we know well enough how these difficult conditions have been successfully and admirably fulfilled by more men than we can count on our fingers, and are the less indisposed to withhold from charging the ideal standard still further in favour of special classical attainments.

In the matter of these attainments there is a primary demand, as there is in every scheme of education, which it is desired should have a certain considerable scope. A great deal must be obligatory, whether the student has any liking or aptitude for it or not. Even as we have all had to learn our multiplication table, and alas! our tables from troy-weight to long measure, and irksome as the learning might be, and precarious as the retention, very right and proper it was that we should do so. But when we pass beyond the universally indispensable arithmetic, it is not easy to draw a very hard limiting line for the measure of knowledge of, say, geometry, algebra, and analysis, that must be insisted on for a man of liberal education in the first place, and then for a man who is to exercise a special liberal profession.

Some are very ready to insist upon a very advanced requisition indeed, on a theory that, useless as the acquisitions may be at any future time directly, they exercise and strengthen the mental faculties; but our difficulty is to find time and energy for the discipline of exercises which lead up to effective application. Laborious progress beyond a certain point in studies for which a pupil has the reverse of aptitude is wilful waste of energy. Where aptitude exists, which betrays itself in predilection as well as in facility of learning, by all means let the student have his head; he may without damage push on in directions and to a distance which are not to be thought of by the less specially endowed; but even so, observance of due proportion relatively to other demands upon application has to be attended to. Such well-considered proportion will give a primary and ever-present standard, and then the sense and instinct of harmony may be trusted to keep all in due subordination. Sooth to say,—putting degrees out of the question, the survey of a series of papers set even for matriculation impresses the conviction that what is so rigidly exacted can only force many young students to an unnatural pace,—an unnatural stride. There, however, is the barrier which has to be cleared, for the road to future advancement is only open beyond. So cleared it is at worse than risk of life and limb,—cleared very often at the expense not only of time wasted for any true educational purpose, but also of weakened energies and exhausted tone. A man with such endowments as those of Macaulay does not obtain a college fellowship, because from the turn of his faculties he finds a difficulty in complying with the conditions of mathematical attainments. A man of the good sense and resolution of Macaulay may decide that the strain upon him would be ill compensated even by success, and renounce a competition which he knows would at best be a squandering of time and strength in his case. But that men of very considerable powers have not always such sense and resolution seems to supply the true answer to the question which is so frequently asked,—"Whatever becomes in after-life of the vast majority of the wranglers, who seem to dive at once into endless hopeless eclipse, after blazing so brightly for a moment in the University lists?"

Some entrance, then, into mathematics is indispensable for all who would vindicate a claim to liberal education, whether in private or professional life. Our common tongue has liberally enriched itself with metaphorical expressions borrowed from the science which indeed sublies all accurate enunciation and reasoning; and if language is to be accurately understood, and gracefully as well as consistently employed, a mastery of the general terms, and even complex notions, of mathematical science must be attained, and knowledge at least of the method employed in dealing with their relations.

Thankful we may be that it is in no wise of necessity to plunge among the mazes of the differential calculus, even with Mr. Todhunter to lead us by the hand; but still there is vantage-ground for the man who has a conception of what the calculus deals with, and which is the way to fuller knowledge if he wants it. "The most useful knowledge at last," said Lord Palmerston, "is the knowledge where to go for knowledge." But we may supplement the dictum with the requirement for such a previous modicum of positive knowledge as will make the result of skilful and ready reference useful.

In any case, the men both of science and art must not shrink from the trouble of acquiring a certain amount of knowledge beyond what it is clearly and manifestly certain must come into use. Margin must be allowed for accidental extensions of demand, and something for the comfortable feeling of insurance against such accidents, and for the sense of power which is given by confidence in possession of a liberal reserve. With mental resources it is much the same as with Dr. Johnson's ideal orchard where he would have had "enough fruit to eat himself, enough to give away, and enough to fall from the trees and rot on the ground." The demand for mathematical knowledge which is made on the architect may justly exceed that which a university may fairly attest to be appropriate for those who, like the general run of undergraduates, never propose to put such acquirements to special application; but they are far, indeed, behind those of the mathematical specialist. Long may they remain so! Long may it be before students whose business is with realities are either driven or tempted to set foot upon the treacherous quagmire across which we are already watching with amazement the most advanced specialists in full cry after the vaporous glimmer of a geometry of four dimensions!

We suspect that the most mathematical architect who should be put on his candour to state and vindicate his limit of the useful, and should consent to

> "Deduct what is but vanity or dress,
> Or learning's luxury or idleness,"

would find even himself surprised by the moderateness of his demands. It may be doubted whether the Mediævals would have been better architects for being better mathematicians; they poised the spire of Salisbury with daring success, which the mathematical professor Wren would probably never have attempted, as, indeed, the mathematicians of our day shake their heads at the arrangements by which he supposed that he improved its chances of permanent equilibrium. What the Mediævals, it is manifest, did thoroughly master was descriptive geometry. The study in detail of what drawings are required to give a full representation of many of their works, even as decided on and executed, is enough to make the hair stand on end. The best check, indeed, upon waste of time upon mathematical labour is the combination of abstract study as soon as possible with practical application,—the practice which brings home forcibly the sense of the directions in which scientific aid is really required. "Knowledge," says Lord Bacon, "which is drawn from particulars entereth more easily into particulars again"; and let us add the corollary: knowledge which is gained, as it often must be gained in the abstract first, can never be relied upon as available at a moment until it has been more than once confronted with matters of fact,—constrained and committed to face and fight the concrete.

If the tendency of these remarks seems to be to relieve the mind from educational strain in one direction, it is in the interest of other studies which are at present threatened with possible injudicious reduction and depreciation, and especially of Greek and Latin language and literature.

But if these studies are to gain some of the vacated ground, or even hold their own, they must submit to as rigid a criticism of their purposes and processes. The kind and quantity of work that here has been matter of rigorous exaction, and of which a large proportion does not even claim approval as of supererogatory merit, is tremendous,—a strong word must be used in justice to severe experience,—and in its character excruciating. Fifty years may not suffice to blunt the memory of sufferings due to still-recurring exactions of original poetry in an unfamiliar language,—hexameters and pentameters, Alcaics and Sapphics,—and this from minds not simply destitute of original poetic fire, but incapable of transmitting or reflecting borrowed poetic rays. Greek and Latin verses have doubtless been written by modern Englishmen,—Latin verses especially,—which can be read with great pleasure, and deserve to live; but if they were all collected it may be doubted whether this profitable outcome of centuries of public-school and grammar-school mischief and misery would not leave many pages blank in a volume of a "Golden Treasury" series. Well might Pope denounce a system which, instead of educating,—that is, of educing,—the faculties of the mind, only shut up and encrusted them, and challenge the educator on production of his completed work,—

> "Now take him to develope if you can,
> And hew the block off and get out the man."

So time and energy may be set free in this direction also for more profitable employment; but when the scientists upon pure scientific pretensions lay claim to all this, and even more,—when we are summoned to make such sweeping surrender to the self-assertion of the physicists and biologists, and the speculators, who, having got hold of the nervous system at one end with their forceps, never doubt that they have firm material hold upon the senses and the soul as identified with the other,—when Greek and Latin literature,—when the history of the ancients in their politics and arts are denounced as unnecessary surplusage,—then, under provocation, we stand our ground, and, moreover, give notice that we can return the fire, not merely gun for gun, but from proper scientific artillery on our own side. Let us be bold to say that a play of Æschylus, an oration of Demosthenes, or a play of Terence, is quite as much a phenomenon as chloride of sodium or permanganate of anything the scientist pleases. Nay, we retort that they are structures of which the principle of order and coherence is as open to scientific analysis in the processes of their development and the correlation of their parts as the human body itself, and much more so than that of an anthropoid ape.

We are more concerned, however, to insist from a point of view of our own that a liberal education requires some knowledge of modern languages beyond the mere power of speaking them like a courier,—knowledge which is only obtainable through intimacy with the tongues from which we borrow expressions, our best expressions, for the complex ideas in morals and mental philosophy, in criticism and in art; from which also, and from which alone,—let the scientists mark it,—constantly progressive science can borrow an admirable and elegant nomenclature that sits upon it easily,—but that only lends its assistance to progress on the not unnatural condition of being understood without constant and encumbering interpretation. But, still more important, it will ever be the characteristic of the liberally-educated that they are imbued with a living sense of the progressive development, not only of our own country, but of general humanity. But history in this sense, the history of civilisation, is inextricably bound up with that of the Greeks and Romans on the one hand and of the Hebrew nation on the other. It is not merely that we trace by remote research the germs of civilisation as ultimately derived from these nations; their influence has always lived on more or less, and has been subject periodically to reinforcement and revival, and we can no more know our contemporaries, their passions and politics, their tastes and tendencies, without this familiarity with their antecedents,—even their remote antecedents,—than we can safely take a servant into our house without inquiry as to character. The currents of civilised vitality have passed into our veins fully as much through classic and Hebrew channels as through Anglo-Saxon, and all our best literature and best art are only at the command of those for instruction and enjoyment who have gained the key to the associations they appeal to at something better than second-hand.

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There is one argument in favour of devoting some time to classical attainments which has force enough, but does not perhaps tell now so forcibly as in time gone by. What learning is in vogue, is in fashion, cannot but be attended to by those who purpose to consort with and in a certain sense to depend upon the classes who are conspicuous leaders of fashion and vogue. But if the House of Commons in any degree represents these, it is certain that classical allusions now fall somewhat flat there; Latin citations, other than the few which by privilege of age and long service are always accepted if not universally understood, are liable to miss fire, or the fire misses tinder, and even when the spark is relumed in the reporters' gallery, it often only flickers among misprints in the next morning's impression. But in whatever way what Mr. Grant Duff calls "the right education for those who have all the chances" may run the risk of being crowded out by multitude of the perfunctorily-educated, its value and its usefulness remain to the possessors. A knowledge which may be acquired even by those who are to lead the busiest lives, of the revolutions and progress in politics, literature, and art of Greece and Rome, will always secure a position within the circle,—not less distinguished because relatively contracted,—of the leaders of culture and the ultimate arbiters of refinement. The delight which such knowledge ministers in itself is also not to be left out of account, though our argument does not require it to be insisted on.

It is a problem for the educators and for those who have the power to enforce conditions upon educators, to determine how courses of study are to be arranged in order that knowledge of such a quality and such a scope shall put the scholar in the way of holding his own in society of the cultivated, and yet not disable him from duly prosecuting what studies lie more directly along the road to his special destination. If universities and schools will not ever,—if indeed they do not rapidly, do not at once,—appreciate the importance of this problem; if schoolmasters will teach scholars according to a theory which implies that they are all intended to be schoolmasters,—then the best course for a student may be to form and chiefly rely upon a curriculum decided by himself, and pursued, as now a very efficient course of study may be pursued, independently, to model his own education preparatory to living his own life.

An architect has demands upon his attention and his faculties of such variety and importunateness, that he can ill spare to have effective life curtailed by obligatory service to pedantry, either scientific or grammatical. But there is every reason in the world for giving help to the establishment of a general understanding that the special culture of an architect is superinduced upon, and is not in substitution of, the conditions of liberal education in the noblest and most generous sense. Let us take a wise word from Prince Hamlet,—

> "Sure he that made us with such large discourse
> Looking before and after, gave us not
> That capability and god-like reason
> To fust in us unused."

The education is liberal which tends to release us from the bondage of present space and present time, and puts this vaunted capability and reason to their proper exercise in "looking before and after,"—in the study of the characteristics of days gone by, which are the factors both of the present and the future.

MÉRYON'S ETCHINGS.

Charles Méryon, who died in neglect and privation eleven years ago, is the subject of the most recent of the resuscitations which it is so much the fashion to make just now, and which form the special work, apparently, of a certain school of critics who make up in individual self-sufficiency what they want in collective numbers. The resuscitation of a man of genius whose works have been neglected or forgotten is in itself, of course, a most desirable proceeding; but we confess to a wish sometimes that it could be done without the affected raptures, the "tall talk," and the absurd airs of superiority of knowledge over all the rest of the world, with which the works of the last newly-discovered genius are heralded by the art-critic of the period. It seems to be part of the *modus vivendi* of the gentlemen of this school to float themselves afresh from time to time by inflating a new artistic reputation on which they may buoy themselves up for public notice and admiration. Now it is a forgotten artist, now a forgotten poet, who is thus made a literary swimming-bladder for the critics, whose occupation would be gone if they did not find a new "cry" from time to time. This sort of thing is offensively illustrated in some of the notes and extracts prefixed to the catalogue: we find an extract from one writer, the author of a book on etching, who, after telling us that Méryon is "one of the immortals," adds "a few persons now living know this as well as I do, but these few belong to a small and highly cultivated class with which the great art-public has very little in common"; the writer himself being, of course, by implication, the centre and crown of this highly-cultivated class who look down from their ineffable height of perception upon the rest of the art-loving public. There is a good deal more of the same sort of thing doled out at the beginning of the catalogue, the effect of which is to incline one to rebel against such peremptory orders on our admiring faculty. If it is found by experience that the introduction of these æsthetic raptures really improves the sale of the works, it only shows how weak-headed most of the people who buy etchings must be. We should have thought the effect would rather be to disgust sensible people.

However, we are not by any means denying that Méryon was a very remarkable, within certain limits a great artist. It is the manner rather than the matter of the critics we object to; we do not quarrel with them for paying his work a high tribute of admiration, if they would only deliver their tidings like men of this world. Méryon belonged to a class of artists who are rather peculiar to France,—Georges Michel was another specimen of them,—men who seem to be artistically as well as socially "Bohemians," whose art, during their lifetime, belonged to and interested themselves alone, having a kind of weird element in it which made it little intelligible to Academicians and those who move in the beaten walks of art. There is a little about Méryon in common with our own Blake, though he was at the same time much more bounded in his conceptions, and much more successful and artistic in his execution than Blake generally was. He seems to have been, on the testimony of his drawings, mystically inclined, though his mysticism is of a very mild type compared with that of the illustrator of the Book of Job. The drawings which illustrate this quality are not, however, numerous or important in the collection which Messrs. Dowdeswell are now exhibiting in their rooms in Chancery-lane. The strong things in the collection are the views in Paris, which are partly pictorial and partly antiquarian; that is to say, some of them appear to be restorations, partly from the artist's own imagination, of bits of old Paris. One remarkable etching of this class is that numbered 16 in Messrs. Dowdeswell's catalogue, "Le Pont au Change vers 1784,"—the bridge in the middle distance, with an extraordinary accumulation of high narrow houses, tumbled together in a heap, seen beyond it, the river in the foreground, and, on the right, a great mass of black wall rising from the water and throwing an appropriate gloom over the whole sinister scene. In this massing of light and shade lies one of Méryon's strong points; and in this quality some of his etchings recall Rembrandt. Perhaps the finest thing in the collection is the view of Notre Dame from the east, the apsidal end, with its enormous spider-web flying buttresses, towards the spectator. The cathedral forms a dark mass against a light but not a calm sky; there is a wonderful feeling of melancholy about the whole, the nature and origin of which are alike difficult to define, but which we feel irresistibly in looking at the drawing, which illustrates perhaps better than any other in the collection what appears to us to be the special interest in Méryon's art, the expression of poetic feeling through the treatment of architectural subjects rather in regard to their general effect on the mind than their architectural detail. It is not merely the picturesque, but emphatically the *poetry*, of old buildings, which is represented in his best works, which may be defined as standing at the opposite extreme from such work as that of Hollar.

The principal portion of Méryon's etchings, as represented in the collection we are speaking of, consists of studies of buildings treated in this spirit, the melancholy side of the subject almost invariably prevailing: indeed, there is an almost tragic force and feeling in some of them. Among others of the most striking specimens may be mentioned "La Tour de l'Horloge" (60, 61, and 62), these impressions representing several states of the plate, of which it may be said, as of other plates in various states, that the latest and most worked states are, in some points, inferior to the previous ones; the second state (61) of these examples is the best; the fourth state (62) is spoiled by some eccentricities. "Le Petit Pont" (69) is a remarkably fine one, especially in the vivid effect of light on the foreground and on the thick-jointed wall of the quay on the left. "St. Étienne du Mont," of which there are several impressions, is more like an average study of architectural composition than most of the examples; in execution it is one of the finest, and shows more care bestowed on architectural detail than seems to have been usual with the artist. In execution Méryon's etchings have their own characteristics; there is less prominence of etched lines, more of massing of light and shadowed spaces, than in the works of some other celebrated etchers. Méryon could, when the subject demanded it, display great firmness and minuteness in the rendering of intricate and elaborate subjects; this is well illustrated in the view of "San Francisco" (24), and the "Collège Henri IV." (20-23), which latter is really a comprehensive view of Paris, with the college near the foreground. In both of these the delineation of the multiplicity of receding roofs and blocks of buildings is carried out with great care and minuteness, so that we can trace the lines of buildings and of streets far back into the picture; though along with this it is curious to remark that in the latter etching the representation of the masses of trees in the spaces near the foreground is singularly bad and blotchy; in fact, one can only recognise them for trees because no other interpretation can be put upon them. One of the most remarkable things in the collection is "Le Stryge" (72, 73), an architectural grotesque on a Gothic building, obviously an invention of the artist, and such a demon as even the real work of the Middle Ages can hardly show us, the force of the thing depending not upon elaborate and studied grotesqueness so much as on the remarkable and demoniacal expression imparted to it.

The Burlington Fine Arts Club, we understand, contemplates making a collected exhibition of Méryon's work, in which, no doubt, many etchings will be included which are not to be seen in the Chancery-lane collection. In the mean time we recommend attention to this latter collection on the part of those who wish to make the acquaintance of an artist of original power, and of a power displayed especially in architectural subjects.

NORTHERN NOOKS: DALKEITH.

The ancient and picturesque market-town of Dalkeith, in the county of Midlothian, which we had recently occasion to visit, is deserving, we think, of some notice in our pages, for it is a place of very considerable historical and political interest; and, what is more germane to the scope of our investigation, it is surrounded with certain of those difficult problems of social and sanitary science which are all too familiar to our readers, but which are, nevertheless, every day coming more persistently to the front. Like Windsor, Dalkeith is nothing without the palace. All the world knows, of course, that Dalkeith Palace is the principal residence in Scotland of his grace the Duke of Buccleuch and Queensberry; and that the ancient castle on the site of which it is built supplies the patrimonial designation to his noblest earldom, and the territorial title of his eldest son. The ancient market town, or rather burgh of barony, which adjoins the palace, is also the largest and most important town in the shire of the capital of Scotland.

The antiquity of Dalkeith is either lost in the hopeless obscurity of the prehistoric period, or must be gathered from the equally hopeless depths of the Scoto-Chronicon and the chartularies. The very etymology of the name is involved in dispute. The learned and erudite Chalmers tells us in "The Caledonia" that Dalkeith is compounded of *Dal*, a dale, and *Caethe*, confined or contracted, thus describing the peninsular character of its site between the two rivers. But, according to the best Gaelic authorities, this ancient territorial *nomen* is compounded of two words (*Dael-chatha*), which taken together signify a field of battle. There is no indication,

indeed, either in the history or traditions of the place, of any remarkable battle, such as Largs or Bannockburn, being fought on this precise spot. But it is highly probable that one of the next and most important fortresses to the "Castel of Edwinsburgh" in the great chain of successive duns and forts and feudal castles which intersected the country, would have had its full share of the sanguinary battles and fearful feuds which distinguished the archaic periods of Scottish history. We will not, however, dwell on this attractive theme, since the whole subject will soon belong to the domain of the Celtic chair in the University of Edinburgh.*

The first authentic account of Dalkeith occurs in a charter of King David I. (of saintly memory) to the abbey of Holyrood; and the information so obtained leads us to the conclusion that during the twelfth century (A.D. 1143-4), the manor of Dalkeith was in possession of the family of Graham. The "Gallant" Grahams,—by which martial *sobriquet* they were long distinguished in Scotland,—held possession of this important castle and manor for upwards of 200 years; and tradition tells us that they lived in great splendour, and took a prominent part in the wars and political intrigues of the time. "But no vestige," says the writer above mentioned, "of their greatness nor their grandeur now remains; and even the mouldering recumbent effigies which lie at this moment exposed within the ruined and roofless choir of St. Nicholas Church, and which were commonly regarded as memorials of that ancient family, have been proved by competent authorities to belong to a more recent age.†

To the Grahams succeeded the Douglases. By the marriage of Marjory Graham with William Douglas, of Lugton,—a hamlet still existing on the northern side of the river North Esk,—about the middle of the fourteenth century, the manor of Dalkeith and the extensive possessions of the Grahams were transferred to the Douglases, with whom these remained for nearly 300 years. It was during this period that the ancient castle of Dalkeith shone in the full splendour of its feudal supremacy; and, singular to say, the first historical notice of it during this period occurs in a passage of the Chronicles of Froissart, when that piquant, if not veracious, chronicler has occasion to describe the celebrated battle of Otterburn.‡ How often it was besieged and plundered and burned, and (to use a most expressive Scotch word) *harried*, it is out of our power to describe. During the reign of James II., it was successfully defended against the Earl of Morton, who had bound himself by an oath to destroy it; but it was that unprincipled politician, afterwards Regent of Scotland, who gave to the castle its celebrated nickname of "The Lion's Den."

To the Earls of Douglas succeeded the Douglasses, Earls of Morton, and to these last succeeded the Scotts, Earls of Buccleuch. The seventh Lord Morton being a devoted adherent of Charles II., whom he supplied in his wanderings with large sums of money, so exhausted his great resources that he was obliged to dispose of his estate of Dalkeith. This valuable estate was purchased in the year 1642 by Francis, second Earl of Buccleuch; and thus it happened that the noble castle and beautiful demesne of Dalkeith passed from the possession of the great Border family of the Douglasses to the equally celebrated Border family of the Scotts.§

From this period the history of the noble house of Buccleuch becomes closely interwoven with the history of England. We shall just mention further that on the death of Francis, second earl, in 1651, the estates devolved first to the Countess Mary, who married Walter Scott, of the House of Harden; and secondly, to her youngest sister the Countess Anne, who was married on the 20th of April, 1683, to the unfortunate James, Duke of Monmouth. On the day of their marriage they were created Duke and Duchess of Buccleuch. It was this celebrated Duchess Anne who built the present palace of Dalkeith, where she lived occasionally in a style of princely splendour; and where she died in the year 1732 in the eighty-first year of her age. She was buried in the aisle of Dalkeith Church.

We shall not attempt, within our present limits, to say anything descriptive of the modern Dalkeith Palace and its magnificent art treasures; but will rather proceed to record the few personal observations we were enabled to make respecting the town. In order, however, to preserve the continuity of our historical sketch, we will here indicate in a few sentences the process of legal transition by which Dalkeith emerged from the feudal superiority of the Duke of Buccleuch to its present rank as a burgh under the General Police Act (Scotland), 1869; or, in other words, the transition from the feudal administration of a Baron Bailie to the Municipal Government of twelve Commissioners of Police.

The character and public duties of a baron bailie are so well known to the readers of the Waverley novels that we need give no detailed account of them. Originally, as we have seen, the baronial right belonged to the family of Graham, subsequently to that of the Douglasses and the Earls of Morton. It is a singular fact that during the supremacy of the Regent Morton the barony and regality of Dalkeith possessed jurisdiction over about fifteen baronies, besides over many other lands and pertinents in more than twelve counties of Scotland, all of which were entirely governed and regulated by the superior and his bailies. On the abolition of hereditary jurisdiction, in the year 1747, or at least a few years afterwards, a statute was made ordaining the appointment of twelve trustees (of which the baron bailie was always one), who should have power to superintend the paving, cleaning, and lighting of the streets; and of supplying the inhabitants with water. Curious enough, the revenue for these purposes was provided for by the imposition of a tax upon the ale, porter, and beer of the parish! * The powers of this Act were continued and extended by subsequent statues; and so was Dalkeith governed, and, we believe, well and cheaply governed, under this statutory trust for the period of 120 years; until at length, after repeated rejection of the measure, the general Police Act was adopted in the year 1876.

Hardly any vestiges of the Mediæval antiquities are left for the study of the archæologist except the roofless choir and octagonal apse of the ancient church, which has now been appropriated as a mausoleum for the family of Buccleuch, as it had long before them been used by their ancestors and predecessors. The church itself has been restored. The market cross has disappeared; and there are not the slightest remains in the whole district of a holy well. Some fragmentary portions of a piscina and an altar-piece were shown us in an old house near the palace gate, with indications of a concealed staircase communicating with the chamber. Cromwell's orderly house, situated in Chapelwell-close, is still shown to strangers. A few sculptured stones are here and there observable ingrafted on modern houses; and, much to our astonishment, we observed several grotesque griffins built into the doorway arches and tower of the West Parish Kirk. Dalkeith is but a poor field for the antiquary,—unless, indeed, he may have the good fortune to cross the parish boundaries, and enter upon the Marquis of Lothian's romantic grounds, and explore the ancient Abbey of Newbattle.

We must now request the reader to accompany us in a cursory survey of the town; and for that purpose we shall ascend the nearest eminence, which happens to be the High Woods. Dalkeith, we immediately see, lies embosomed in the midst of a series of gentle heights,—for we can scarcely call them hills,—such as Elphinston, the Camphill, and the White Hill, flanked to the southward by the beautiful outline of the Pentland Hills in the distance. The town is built, as we have said, on a sort of miniature peninsula formed by the angular contact of the North and South Esk, which meeting of the waters occurs on the duke's pleasure-grounds about a mile below the palace. The general surface is tolerably level, except where intersected by the courses of these two mountain streams, which, during the wet seasons, assume the dignity of torrents. The whole district is literally embowered with woods and gardens, and glows with verdure; and the spires of the little town, rising amidst a cluster of blue-slated and red-tiled roofs, give it a singularly pleasing and picturesque aspect.

This peculiarity of its triangular site seems to govern the plan of the streets; for there is not, as far as we could observe, a rectangular plot in the whole of Dalkeith. Hence the numerous and picturesque irregularities everywhere visible in its street architecture, the projecting gables and recessed frontages, with all manner of decorated lintels, curious doorways and windows, cross-stepped dormers and gablets. The High-street, which is about half a mile in length, stretches in very diverse breadths from the palace gate to the railway station, runs in the direction of north-east and south-west, and stands, we were told, about 182 ft. above the level of the sea, from which Dalkeith is about four or five miles distant.

Proceeding westward from the palace gate, the first noteworthy building is the Corn Exchange, erected in 1854, from plans by Mr. D. Cousin, of Edinburgh, who was also, as we remember, architect of the Edinburgh and Leith Corn Exchanges,—all good examples of their class of structure. Dalkeith Exchange is a large hall, 170 ft. by 50 ft., with open-timbered roof about 40 ft. high, and a triangular-pitched roof. The gable front in the High-street is adorned with a panel containing the duke's coat of arms. The building cost nearly 4,000*l.*

On the opposite side of the High-street, which here debouches upon its broadest part, stands the parish church of Dalkeith, which we have previously mentioned as the restored ancient church of St. Nicholas. It is first described in a charter of Sir James Douglass, A.D. 1368, although it is more than probable the foundation of it is earlier (*circa* 1140), for the parsonage of Dalkeith formed part of the deanery of Restalrig, in the diocese of St. Andrews,—the archiepiscopal see of Scotland. It was first restored in 1560; again it was sadly neglected, and, in fact, suffered to fall into decay, but it was again restored in its present condition by the late Mr. David Bryce, R.S.A., in the year 1852, and considering that that architect's genius took the direction of the Renaissance, it is on the whole fairly successful. The style is the very heavy Scotch style of Glasgow and Jedburgh. The spire and clock tower are obviously too dumpy, and we were sorry to find that plaster and oil paint had been employed to disfigure the interior, where the gilding and stencilling work are also out of all place and character; the Greek lotus ornament, for example, being painted in a very *prononcé* chocolate colour round the lower members of the capitals of the Gothic pillars. We may add that the cumbrous and unsightly enclosure wall next the High-street ought to be removed with all practicable speed.

The West Church is what is termed a quoad sacra parish church, and is certainly a good building of its class, occupying one of the finest sites we have seen in Scotland. The spire is, perhaps, a little too attenuated, particularly when contrasted with the steeple of the parish church; and the mouldings of the tower and the dwarfed transepts are meagre enough. It is built, we observed, of a particularly fine sandstone, said to be from the Fife quarries. Two or three Presbyterian churches in Buccleuch-street and King's Park are worth noticing; one in particular, by Messrs. Thornton & Shiells.

The Roman Catholic chapel and schools a little higher up were built under the auspices of the late Marchioness of Lothian about a quarter of a century ago. The modern suburb of Eskbank, which lies beyond this, contains only a number of villa residences and a railway station, which we need not stay to particularise. The Public Schools are of the usual stereotyped character,—well planned, however, and fairly ventilated.

The town is tolerably well paved,—chiefly, of course, with the boulders from the bed of the neighbouring river; but the High-street possesses a broad belt of dressed whinstone cubes, extending from the palace gate to the railway station. The side pavements are also in tolerable order, and we are glad to observe that the scavenging is very good, if we except the slow and protracted process of emptying the ash-buckets into the dust-carts. On the other hand, we are sorry to report that the drainage is very bad. Dalkeith, for a small town, has a very pretty tendency towards labyrinths; as, for example, in the meal market (from which no less than five streets and wynds radiate) and some of the overcrowded closes branching from the High-street, and this perhaps is a disadvantage to the carrying through of any thorough system of drainage. But there ought to be no difficulty

* See the "Statistical Account of Scotland," where the question is discussed with much ability by Mr. Peter Steel, M.A., Rector of the Grammar School. 8vo. Edinburgh: Blackwoods. 1835. Vol. i., p. 241. Compare also the excellent article on Dalkeith in Fullarton's "Gazetteer."

† There is a valuable monograph on the subject by the late James Drummond, R.S.A.

‡ See Johne's edition of Froissart, vol. i., p. 217, *et seq.*

§ See Dalrymple's Annals, vol. ii., p. 341.

* We are indebted to Mr. D. Jerdan, printer, of Dalkeith, for a sight of original copies of these Acts.

whatever with regard to the levels. Yet there is at this moment, in point of fact, no proper system of drainage in Dalkeith. No arterial sewer, for example, runs along the line of the High-street. Cross drains have been laid down at different times at different points of the river: one through the Chamberlain's grounds, close to the palace gate, one or two in the middle of the High-street,—all into the North Esk; while a solitary sewer has been laid from the Back-street into the South Esk. The Duke, we were told, got angry at all the Dalkeith drainage being poured into the North Esk, this beautiful river being made the receptacle of the whole parish sewage; for it passes, as we have seen, within 200 yards of the palace windows.

Up to this date almost the whole water-supply of Dalkeith consisted mainly of a remarkably fine spring well, accidentally discovered in re-opening an old coal-pit close to the river banks, and distributed through the town by a pair of pumps driven by the water-power of the mill-wheel. There was also a moderate supply derived from Lord Melville's grounds. These sources, however, at length became so defective that an arrangement was made with the Edinburgh Water Company to introduce a supply under their recent extension Act; and this water, which is brought from Moorfoot hills, was just introduced at the time of our visit. It is worth noting that ample provision is made for extinguishing fires in the town, the method employed being that of the well-known Kilmarnock fire-plugs.

The gas-supply seems defective both in quality and quantity. Much larger gas-works seem to be needed for the stretch of pipes, extending as these do from the village of Thornie-bank to Eskbank, and from the village of Lugton to Newbattle Abbey.

We have still something to say of the population and the municipal government, as well as the condition of the neighbouring villages.

FROM THE BANKS OF THE SEINE.

Of the gravity of the existing situation in the building trade of Paris we have already spoken more than once; nor can we as yet, unfortunately, foresee the end. Within the last week the position cannot be said to have in any way materially changed; but a fresh spoke has been put into the slackening wheel by the action taken, and the opinions expressed, at the recent Working Men's Congress at Marseilles. The violent and revolutionary, even openly socialistic views given vent to in the course of this congress are scarcely surprising, coming from the descendants of the old Greek colonists on the shores of the Mediterranean, whose home has so long been famous as the hotbed of reactionary ferment; but the influence of these warmly-expressed sentiments has been feeble in comparison with the pecuniary support sent from Marseilles by the congress to the Parisian brethren out on strike.

We were asked not long since by an accomplished English architect, more interested in the artistic than in the material side of building, and who had been passing some happy days on the banks of the Seine, perhaps for the dozenth time in his life, whether at the present moment there was any building of consequence being carried out in Paris. We are fortunately able to answer this question by the aid of some recently-published statistics regarding the Parisian building trade, which, as we have more than once already remarked, has never been more active than in this latter quarter of the now fast-closing year. It would appear that in the twenty *arrondissements*, or parishes, into which Paris is divided, since the 1st of January of this year until the 15th of last September, some 658 houses have been erected,—some 1,851 stories being built in stone, the remaining 1,042 stories in brick. In the seventeenth *arrondissement* the activity is the greatest, the artistic and wealthy *quartier* of the Parc Monceaux, where certainly,—together with a walk or drive along the Boulevard St. Germain,—we would advise every professional visitor to Paris to pass a day or two. But it is difficult to penetrate to any neighbourhood, however distant, without finding signs of the great activity of the building trade on the banks of the Seine, and the visitor who remembers Paris even during last year's Exhibition will find that many important changes have since taken place. As for public buildings, Paris, of all cities in the world, has least need for them; the Hôtel de Ville is rapidly approaching completion, and now, within the last few days, the proposal has come, not a moment too soon, to sweep away the old Hôtel des Postes, the muggy, cabined, cribbed, confined post-office of the Rue Jean-Jacques-Rousseau,—the same dark unimposing building into the courtyard of which rattled and jingled in the days gone by the quaint old diligences that bore the travellers from England, from America, and from everywhere, to Paris. The Rue Jean-Jacques-Rousseau (which, by the way, takes its name from the fact that that eminent philosopher once occupied there a humble lodging) of to-day is the same Rue Jean-Jacques-Rousseau that Thackeray has described so amusingly, and down which have jolted and tumbled ever so many of the distinguished visitors to Paris within the last few generations. And now the old Post-office is to be swept away, and no regret need it cause; the most important of all the Government services has been the last to receive attention and the promise of a home, and high time was it, when it is stated that in the Rue Jean Jacques Rousseau every day something like 1,200,000 objects,—200,000 letters and 1,000,000 newspapers and packages,—are received and distributed, the work employing some 8,000 agents, of whom 1,200 are postmen. Different days these from 100 years ago, when the "*petite poste*" occupied at Paris 117 postmen, and had 395 boxes. In 1865 the number of objects manipulated was 173,000,000, last year this sum surpassed 430,000,000, and all this the result of cheap postage. It is scarcely within our limits to discuss, still less to settle the dispute, which of the two, M. Emile de Girardin or the late lamented Rowland Hill, was the earlier to propose "penny postage;" but when Paris possesses, as she soon will, a worthy rival to St. Martin's-le-Grand, it will afford no little satisfaction to the survivor of the two eminent benefactors we have above mentioned, to see so visible a proof of the correctness of the theories which forty-seven years ago he laid before the public.

From the consideration of such a strange anomaly in modern Paris as an insufficient Post-office (from whose official inconvenience we have more than once, with how many another phlegmatic Britisher, had personally to suffer), it is a wide step to the shores of Britanny, but the recent visit of M. Turquet, Under-Secretary of State for Fine Arts, to Mont Saint-Michel, induces us to mention the cause of this round of inspection. M. Turquet has set on foot an inquiry, clamoured for, for some time past, on the causes of the difference which at present separates the administration of the highway department and the direction of that of the fine arts. Some while since the civil engineers commenced the construction of a dam, which is to connect the island on which the picturesque old pile is built, with the main land. Apart from the objection which may be taken from an artistic point of view, it appears that the establishment of this dam might bring about, if not the eventual demolition of two of the towers of the old line of fortifications, at least a great deterioration and injury to their bases. The fact that Mont Saint-Michel is classed among the historic monuments, and consequently protected, has led M. Turquet to institute a strict inquiry into the risks which the grand and familiar old castle, and its picturesque abbey and convent, would run, in consequence of the needless construction of the dam. We may assume that in such appreciative hands, every possible care will be taken to jealously protect so famous a feature of the architectural marvels of France.

From the banks of the Seine has recently risen a voice that will before long doubtless find an echo on the sandy banks of the eternal Nile; some days since MM. de Rozière, Le Blant, and M. Wallon were received by the ministers of foreign affairs and of public instruction in private audience. The worthy Academicians, in the name of the learned body they represented, have asked the two ministers to induce the Viceroy of Egypt to allow the French Government to again take up the archæological excavations which, within the last generation, have yielded such extraordinary results. The two ministers have certainly given their assent, in so far as concerns their efforts; but the sad and unexpected failure of the recent attempt of our Transatlantic cousins to bear off the twin obelisk to our Cleopatra's needle points rather ominously to the possibilities of success in the matter of Egyptian excavations; the bondholders cannot be expected to be enthusiastic archæologists. We sadly believe that the continuation of the invaluable researches of Layard, Bonomi, Champollion, Lepsius, Mariette, and many another ardent Egyptologist, will have to await the painful settlement of the "Eastern Question."

We have mentioned the familiar name of Mariette; did our space permit, we feel certain that we should interest more than one reader by condensing the instructive paper communicated not many days since by that eminent and revered Egyptologist on the question which we have above mentioned. We refer those interested to the report of the meeting of the Academy of Belles Lettres and Inscriptions, held on October 17th.

While still speaking of Egyptian subjects, let us not neglect to draw attention to the excellent example recently given by M. Revillont, the worthy curator of the Egyptian Museum at the Louvre, in attaching to every object under his watchful charge in the interesting rooms he administers, a label on which are mentioned the subject, the nature, and the origin of each object exhibited. Such a step is indeed an advance in the true direction of popular instruction, and much do we wish that not alone in the Louvre, but in every museum at home and abroad, such a method were adopted. The catalogue serves excellently for the stranger and the student to read at home and carefully annotate and interleave, but many a precious object is overlooked in even a series of visits, objects to which an indicative label would have sufficed to draw attention. Our South Kensington Museum authorities long since recognised the value of this system, which has transformed the treasure-house of Cromwell-road not alone into an illustrated but a plainly legible encyclopædia of art. We may welcome this new advance of the French museum authorities as one more step towards the simplification of that great work of the future, the classification and arranging in due order of the treasures which the past has handed down to us, and of which we year by year become more than ever obedient and faithful trustees for the future.

FROM THE BANKS OF THE RHINE.

THE OPENING OF THE NEW ACADEMY BUILDINGS, DÜSSELDORF.

The ceremony of throwing open the new buildings of the Düsseldorf Academy, although not quite completed, took place in the last days of October. We have already given a view of the edifice,* together with a few details of its architecture.

The Academy occupies a fortunate position, rising above the wide plain surrounding the city, and free on two sides, towards the Rhine and the parklike grounds of the Hofgarten, so that its best light will never be obstructed. On the other side, however, the building is bounded by a quarter which is not one of the most elegant of the town. As completed, the handiwork of the architect Riffart forms a long parallelogram containing large spaces for all requirements of the present school of art, having besides ample room to spare for future extensions, such as the art trade-schools, the establishment of which is intended. It will not be possible to form a correct idea of the exterior of the building until all the statuary with which it is to be adorned is placed in position. But the interior is finished, and may be called elegant and fitting.

Several high dignitaries of state were present at the opening ceremony, which took place in the Aula of the new Academy building, a room of moderate size, affording a charming view over the Hofgarten, the Rhine, and the country beyond. This room contains the best paintings remaining of the former celebrated collection, and was, besides, adorned with flowers and shrubs for the occasion. On one of the narrow sides has been placed the large picture of the "Ascension of the Virgin," by Rubens, in front of which the platform had been erected. The proceedings commenced with the performance of Beethoven's March and Chorus from the "Ruins of Athens." Professor Wislicenus, the president of the college of professors,—the Düsseldorf Academy has no official director,—followed with an address; and he was in turn succeeded by Herr von Puttkamer. The latter announced that Professors Wittich, Dücker, and Ittenbach, as well as the architects Herren

* See vol. xxxv. (1877), p. 346.

Riffart and Lieber, had been decorated, and that Herr E. Hütten, painter, and Herr Forberg, engraver, had been appointed professors. A very good speech was next delivered by Oberpräsident von Kühlwetter, in which the latter pointed out the influence of Düsseldorf art upon the industrial population of the Rhine countries. Referring to the three great creations of Frederick William III. of Prussia, the University of Bonn, the Academy of Düsseldorf, and the Polytechnic School of Aachen, he drew attention to the fact that those three institutions have helped to foster the national spirit in Western Prussia, and have not inconsiderably contributed towards the work of the unification of Germany. After various other shorter or longer addresses had been delivered by the representatives of various public bodies and art societies, the oration of the day was pronounced in an eloquent, if somewhat prolonged, speech, by Professor Woermann, professor of art history of the Academy. The academies of art of the last century, he said, had fallen into a certain degree of disrepute, and the word "academical" had acquired a bad sound, to such an extent that only through opposition against them the new German art, the art of Cornelius, Overbeck, and their coworkers, had arisen. The speaker then dwelt upon the origin of the first academy, and rejected the reproach of pedantry and love of empty forms advanced against it, by pointedly observing that each age brought forth its own abilities, and if times of narrow-mindedness had not given birth to high artistic natures, this was not the fault of academies. Professor Woermann then referred to the origin of the present Düsseldorf Academy, the appointment of Cornelius as its founder and director, and the principles upon which it was conducted,—principles which have been adhered to by his successor, Schadow, and the present head of the Academy. After entering at length into the various directions of art and its teachings, the speaker finally maintained that the Academy had been true all along to the principles laid down by Cornelius, and stated that it would continue to be faithful to them.

With this "oration of praise," as it would have been formerly described, and as pointed out by the speaker, and the performance of Händel's "Hallelujah" from the "Messias," the opening ceremony came to an end. In the afternoon a banquet, given by the Academy, took place. In the evening the art-club "Malkasten" hospitably threw open its rooms to official and non-official guests, when, as usual in art circles, the proceedings were of the most unofficial nature and on a most familiar footing.

It may be mentioned that the preliminary works for the art and industrial exhibition to be held at Düsseldorf in 1880 are proceeding rapidly.

HALF AN HOUR IN ST. PAUL'S.

A RECENT visit to St. Paul's Cathedral has afforded so signal a confirmation of the views which have been more than once advocated in the *Builder* as to the decoration of the sacred building, that we cannot do better than invite all those who take an interest in the subject to follow in our steps. We do not ask our readers to see with our eyes, or to accept our opinion as pedantically offered as decisive. But we beg them to look at the subject from the point of view which we indicate; and then to ask for the impartial verdict of their own taste.

The effect produced is due to the window recently erected to the memory of the late Dean Mansell, in that portion of the north-west of the cathedral which is used as a chapel for the early daily service. It is not our wish at this moment to enter into a minute criticism of the window itself. In common with those who hold what we regard as the orthodox artistic view on the subject, we are opposed to the principle of producing transparent pictures on glass, as opposed to the translucent mosaic of our earlier glass-stainers, or to the brilliant window jewelry of their successors. No doubt very beautiful effects have been produced by the modern German artists. Great delicacy of tint and shading, and admirable display of the motive of the artist, are no doubt secured by means of passing the light which renders his work visible through the very body of the picture. On the other hand, the perishable nature of the material, and the objection to admitting the light of a building through what does not profess to be a window, but a painting, are only two among the many objections which the lovers of old stained glass entertain to the new method. Objecting, then, to the theory of the window in question, we admit a certain degree of excellence in its execution. The subject is that known to ecclesiastical art as the incredulity of St. Thomas. The entire light is filled with an architectural composition of a tint between brown and yellow, in front of which four figures are represented, with distinctly drawn, and rather highly coloured, features and garments. We must remark that the idea of the transparent picture,—which is the main key to the composition,—is much interfered with by the leading of the faces of these figures. This black definition, which is one of the characteristic features of the true window jewelry, has a bad effect on the transparent picture. It introduces a style which is not only discordant with, but wholly and most unfortunately contrasted with, the treatment of the architectural work. Beyond this, which is probably an unavoidable disfigurement, unless very great expense is incurred, we think the general tint of the architecture too brown. The introduction of a heavy wreath in sculpture, coloured with the brightest imaginable tints of fruit or flowers, is, we conceive, on no possible plea to be either justified or pardoned. The best part of the window is the blazonry of the two escutcheons,—one bearing the arms of the deanery, the other the three mantelets of the family of Mansell, and the little peep of distant landscape which is shown through the upper arches of the gateway, or whatever the building in question may be called. These are, of their kind, admirable. For the figures, we cannot say much.

But if we are allowed thus to "hint a doubt and hesitate dislike" as to this particular window, the remark that we have to make as to the great improvement which it has effected in this part of the cathedral is only the more deserving of attention. The light admitted through the Mansell window, and through the two noble lights representing St. Peter and St. Paul, in a rich window jewelry which contrasts most forcibly with what we regard as the improper style of treatment, is rich and harmonious. Better, no doubt, it might be; but even under all disadvantages it transforms that part of the interior into what Wren no doubt intended it should be. The peculiarly cold look of the interior of St. Paul's is due, we have always been of opinion, to the excessively inappropriate character of the light admitted through the windows. It is impossible to look at these great, white, staring apertures without a painful effect being produced on the eye. And the effect on the architectural lines and forms is to chill and impoverish them. Add to this, that the clearstory windows are so obscured by gratings and projecting bars that hardly any light comes down from them to the floor of the cathedral, and the illumination which they afford in any part of the building is in no way proportionate to their apparent size.

But when the tinted light of stained glass is allowed to fall on the internal architecture, the sense of chill and poverty is altogether banished. The north-west corner of the cathedral looks like a Christian church, instead of a pagan mausoleum, the great difference being that of tint. This brings us back to our former proposition, made in these columns when first the subject of the internal decoration of St. Paul's was mooted. The first thing to be done is to fill the windows with richly-stained glass. We insisted on it that no attempt at chromatic decoration could be anything but a miserable failure, unless the future colour of the light to be admitted was first decided. And we now hold, with some confidence, what we in the first instance only suspected, namely, that the great architect knew thoroughly what he was about. Wren's interior, seen by the light of those coloured windows, of which the absence gives something of the effect of a barn to what may be otherwise the noblest and most carefully wrought out designs, needs little more to add to its beauty. Little as we care for the windows at the east end of St. Paul's, they are adornments and enrichments to the cathedral, regarded as media of illumination. If windows of proper character were supplied to St. Paul's, a very important part of the needed decoration of the interior would be done.

Institution of Surveyors.—The first ordinary general meeting of the session will be held on Monday, November 10th, 1879, when the president, Mr. William Sturge, will open the session with an address.

MUSEUMS OF ART: THEIR TEACHINGS AND OPPORTUNITIES.

THERE are so many contrasts between the past of things in this world and the present of them, and especially as regards art, that it would be a hard task, indeed, to compile even a list of them. In nothing, most assuredly, would greater difference be found, when gone into in detail, than in the fact of each one country or nationality being, in the past, a thing in itself, and a something apart from all others, round and about. What, for instance, could be more diverse and separated than the ways and artistic expression of old Egypt and antique Greece? To have travelled into and to have seen Egypt from Athens must then have been pretty much the same thing as the visit to another planet. Men and women were there in them both, it is true; but how different in their modes of expression, and how strange to the one must the other have been! That Greek and Egyptian were different men, expressing themselves each in his own way, seems trite and obvious enough, but it is wonderful to think of how little this is nowadays thought about; and still less is it considered how different things about us now are, and how strange it would be to find oneself in the precise position of the old Egyptian or the classic Greek. A traveller from Greek Athens to Egyptian Memphis must needs have found himself in an all but new world; but a tourist from London to Paris nowadays finds himself in pretty much the like sort of place, with surroundings and ideas differing but little from those he has but just left. Highways, streets, shops, goods, and fine art all but the same, and in not a few cases not to be distinguished one from another. And all this sameness of art expression—confining ourselves here to art—is rapidly extending itself and spreading itself all over Europe. It is, as we think, impossible to overestimate the import of this ever-extending uniformity and sameness of art feeling and expression. All is getting alike, and it is only in a collection or "museum" of antiquities that there is to be seen the evidences of how different nationalities express themselves, in form and colour, when obliged to do so, and when working indigenously, each country or nationality for itself.

And this it is which calls attention so impressively to the whole subject of museums, or collections of past and foreign art, as well as the indigenous art of the country which supports such institutions. In them, and for the most part in them only, can be got glimpses of a mode of art expression different from that which everywhere surrounds us. Many may, perhaps, have felt this when in such a room as that in the British Museum devoted solely to what is popularly termed "Etruscan" art and pottery. An examination of the remains of the past of things in this room will, if due attention be paid to them, completely transport the mind into a state of things as diverse from the present, and from the life about us, as it is perhaps possible for anything to do. We are sent back to another age and place.

Looking, therefore, at the matter of museums in this way, and from such starting-point, we cannot but think that the time will come when a much deeper and more abiding interest will be felt in the whole subject than is at present perhaps possible. They may, indeed, in time, come to be looked into as into open books of reference, for the seeing into things as they once were, and for the seeing into things even as they now are, though remote from us, and from our own ways of life and work. They will also, and this may be perhaps their chief work, put before us the evidences of the "individuality" of widely separated races of men, working as artists and workmen, under conditions different to our own, under other skies, and with different materials and tools. As matters now are, it is found not a little difficult to realise to the mind the special characteristics which go to make up a distant nationality, whether distant in time or space. Mere description, however vivid and truthful, will and can hardly do this. Nay, the very poetry and literature of a great and original race, as the Greeks, hardly give such due impression of the Greek man and his modes of work, as to be all sufficient, though they do so much. But a bust of a Greek hero, an engraved gem, or a sculptured procession, is found to afford at a glance a picture of the then state of things,—of faces, forms, costume, architecture, and even "manners,"—which nought else can give.

Now, looking at matters in this way, it has

often occurred to us whether or no some change for the better could or could not be made in our present museums, fitted up, as they for the most part are, with so multitudinous and miscellaneous a collection of all sorts of "antiquities," and of things that are curious. Take for example the British Museum. What is there not to be found in it,—in its public galleries, and in its vaults and storehouses? It is well to think of the now certain removal of a definite part of its contents to another locality and to a separate and distinct building especially put apart and built for it,—the Natural History Division, as it is termed,—an obviously quite distinct and separate thing from antiquities, and architecture, and sculpture, and from a vast collection and library of MSS. and books. To the public generally the British Museum is a vast repository, wherein may be found, if sufficient and diligent search be made, specimens of all and anything which any can possibly desire to see. This may, indeed be so; but in the not very far-off future this great institution will be necessarily limited to a somewhat narrower range of objects. We do not say what; but it is a little curious, if we but come to think of it with due attention, that the very word "architecture" can hardly be said to exist as one of the Museum's descriptive words. There are antiquities in plenty, and sculpture, but of architecture only a hint here and there.

Of the importance of remembering this when the "Natural History" is moved to South Kensington there is no doubt, for a vast space of unoccupied ground, and floor and wall space, will then be available for other and new purposes, and which will without doubt in time compel a more strictly scientific and artistic division and arrangement of the then contents of the museum. As things are, all has been simply accidental and as occasion served, and hardly any attempt,—if any,—has ever been made at a scientific or historical arrangement, or even at the confining all the antiquities got from any certain locality or building to one fixed spot. Much is lost by this, and more ample space can alone make matters in this respect better than they now are or have been. We call attention to this from the fact of the, in reality, limited range of the National Museum's work, though it seems at first sight so multifarious. Natural history is a very wide term indeed, and when all is gone from the British Museum that ranges itself under that wide heading, one half of the Museum galleries will be empty, and available for the reception of other objects coming under other "headings," whatever such may be. And this wide space it is which would seem to almost invite consideration to a more comprehensive and scientific appropriation of it, and to an effort perhaps to, in part, at least, fill up the gap we have hinted at.

We might here usefully for a moment, and by way of illustration, call attention to the small Bethnal-green Museum, and which, in its present state, may be said,—minus the library,—to epitomise the British Museum as it *first* started into life and activity. In that there is a little of everything and from everywhere, and it well bears out, at least, its title of a "museum," as that word is usually understood and applied. Some of the objects exhibited are quite unique, and not to be found elsewhere. Pictures of all sorts there are in plenty, and representations of objects, and ironwork, and pottery, and woven fabrics, and natural history, and a little architecture and sculpture, and "raw materials;" but of scientific idea or artistic sequence there is, in reality, no trace. And, what is more, perhaps, there is nothing specially applicable to the denizens of the locality in which the museum is situated, and the thought occurred to us more than once,—Could not a something have been attempted which the working artists of the locality would have more directly felt interest in and been practically benefited by? If but some special art-trade had been directly appealed to, and the details of such trade illustrated as far as could be, would it not have roused the attention of the workmen of Bethnal-green more thoroughly than the miscellaneous range of objects now on view, and so have led them on to other subjects? It may be perhaps too bold and too far off a thought to even hint at; but when we consider the intense interest which the actual working out of any object is found to elicit, especially from working men, but, as well as such, from however miscellaneous a crowd as is seen every day and at every street corner, and as is evidenced by the interested crowds collected round the windows of any tradesman at his work, might not some attempt be made here, at least, to not only encourage the drawing and copying of objects on paper, artistic or otherwise, but the actual working out of them? It is quite wonderful to see days and days at the British Museum, and even weeks, spent in the efforts, painstaking and industrious as they without doubt are, to finely and almost microscopically stipple an antique head, or arm, or hand, while the thought of the carving in material or sculpturing a hand, or a foot, or a head, would seem not to occur to any, even advanced, student. If this work in a museum did not interest the student, it most certainly would the spectators,—the "crowd," if the reader will. There is here a fine collection of ironwork, from a time when iron was thought about as a medium for art thought and expression, and a simple door-lock key is found, if duly looked at, to have been the result of much thought and painstaking, and skill of hand. If one, if not the chief, use of the antique be the copying in detail of it, and as a test of the student's power over form and expression, might not here the workman,—the artist-workman,—find his opportunity, not in the mere study of copying on paper some useful object, but in its realisation in material?

GARDENING AT HOME AND ABROAD.

M. Charles Blanc has recently published a remarkable essay, in which he is compelled to acknowledge that the French system of laying out public gardens has been abandoned by Frenchmen themselves, and preference given to that of the English school. Formerly a Frenchman planned out his garden as if it were a geometrical drawing, and even cut the branches of the trees so as to render their forms perfectly symmetrical. In those days our neighbours accused us of resorting to mere accident in the laying out of a garden. It was said that we gave the gardener copious libations of the strongest drink, and then, following his unsteady footsteps, traced a path wherever he might happen to reel. Hence the erratic and irregular appearance of the English garden. In France nature was allowed to play only a secondary part, while in England there was perhaps too much licence given to the freaks of fancy. Thus, in one celebrated English garden, there was a grotto to St. Augustine close to a dancing Dryad, a labyrinth of greenery, a Gothic edifice, a reduced copy of the Parthenon of Athens, a pyramid in honour of Congreve, and another to commemorate the memory of the Princess Amelia; a saloon dedicated to Nelson close to a temple of Venus, and a mausoleum to Signor Fido, a favourite Italian terrier! This heterogeneous conglomeration of eccentricities was an exaggeration against which it was necessary to re-act; while avoiding, on the other hand, the unnatural symmetry of the French school, as exemplified at Versailles and at the Tuileries. To effect this happy compromise, M. Charles Blanc recognises that nature should, and as a matter of fact has been taken for a model. What need have we for monuments, statues, columns, where nature can present to our contemplation all the unrivalled beauties of the vegetable kingdom, and show us, in natural creations, all the grace, the majesty, the delicacy, the force, the brilliant colouring, the infinite variety of world which our best artists can but feebly imitate. Cicero inquired why we should *construct* gardens, when it sufficed to plant, to water, and to nurture with love what would not fail to grow into the most charming and magnificent of resorts. What copy of antique statuary could rival in warmth the magnificent plants we import from China, Japan, or Virginia? Where is the vase that can equal the Chinese rose, with its scarlet blossom, its golden tints, its velvet surface?

The modern garden, consequently, presents to us nature alone, nature assisted in its developments by man, who has a knowledge of the natural laws. The qualities required to lay out a garden are those of the artist or the painter rather than that of the architect. To plan a public garden is to plan a vast picture, which will be contemplated from various points of view, and constantly present a different aspect as the walk through the garden is prolonged. Instead of tracing a geometrical plan on paper, the designer must foresee what will be the different perspectives, he must realise in his imagination what will be the various points of view to be obtained by the spectator who strolls through the garden which has to be called into existence. The spectator will not, as in olden times, expect to walk over grounds divided into compartments, on which an edifice of trees has been built, vaulted over here, opened out in other parts, surrounding a saloon of verdure, or forming a narrow passage leading to little harbours or cabinets of repose, the whole furnished with carpets of grass and fringes, and wainscotings embroidered with flowers,—we have now, on the contrary, for garden a landscape at once ideal and real, "embellished by that invisible fairy, Nature, guided by the genius of art."

To obtain, however, such result, a great knowledge of nature is required. Each tree has its peculiar physiognomy, its special altitude and attitude; in fact, its deportment expresses a sentiment which bears a direct connexion with its physical qualities, and at the same time expresses a human idea. Thus, some trees are qualified as majestic, proud, hardy, rough, wild, melancholy; and the designers of our parks and gardens must bear this symbolism in mind; must be careful, while preserving a natural aspect, to avoid any absurd combinations of trees that express these varied sentiments. Then, again, the same care and forethought must be displayed with regard to the effects of colour, and for this an intimate knowledge of the varieties of colours, tints, and changes, which a plant presents during the course of the year must be acquired, for what might blend and harmonise in spring might in no wise agree during the autumn. This is rendered more difficult by the importation of innumerable plants from the tropical regions which are still strange and unfamiliar to us. But, in all this, the surest way of avoiding a foolish blunder is to follow as closely as possible the laws of nature, planting on the summit of the hillock the trees that are found on elevations, and in lower portions the plants that thirst for humidity and thrive when sheltered. The observance of this principle, which seems so simple and yet requires so much knowledge in its application, will give to the garden a natural appearance, will insure the successful growth of the plants, and develop those mysterious harmonies of nature which we cannot too closely imitate.

FACILITATE THRIFT.

POST-OFFICE SAVINGS BANKS.

The establishment of Post-office savings-banks was undoubtedly a great incentive to thrift among the poorer of our vast population. For the investment of one economical person of some portion of the monthly or yearly earnings has a tendency to cause equal thrift among that person's friends and neighbours, and thus by degrees thrift of this sort becomes much more general; it gradually grows into an admirable custom and habit, and in course of time a large portion of the population becomes generally less wasteful. We have no intention here to preach a sermon upon this subject of a due and proper economy, but there is scarcely any one of the social habits of a people which is more largely conducive to individual and general comfort and happiness than that of putting by some portion of the daily earnings for the unforeseen requirements of the future. It is, therefore, very gratifying to find that, during the year 1878, 163 offices were added to the number of those (5,668 in 1877) which already transacted a bank business, and that equally with this increase of offices there was an increase of depositors and an increase of deposits (92,700 and 318,000*l.*).

On the other hand, considering the severity of last winter and the slackness of trade, it is not astonishing to find that the number of withdrawals over that of the year 1877 was 51,600; but it will be seen, from a comparison of these figures with those of the number of depositors, that the proportion of the latter is greater than that of withdrawers. Nor can we accept an explanation given by the Postmaster-General of the satisfactory progress of savings-bank business, that "it must be looked upon as due in a great measure to the numerous bank failures which have recently occurred." Because the number of these disasters has not been numerous enough to affect very largely the business of the savings-banks; nor is the general class of depositors in such banks as the City of Glasgow and the West of England Banks the class which would, in consequence of the financial alarm current last year, rush at once to place their money in savings-banks.

And in connexion with the subject of deposits

we are very glad to call attention to an arrangement which has been adopted by which navvies employed in the construction of several public works have now the opportunity afforded them of depositing money in the Post-office savings-banks. For navvies are, as a class, decidedly improvident; as a rule they are paid an excellent rate of wages, but they have something of the reckless and extravagant character of seamen about them, and think less about saving for the rainy-day, which is almost certain to come to a large number, than they should do. We should have been better pleased, however, if the Post-office could have given us some information as to the way in which this opportunity is used, and whether or not the system cannot be introduced still further in the case of large private firms. The workmen in some of the largest building and other firms in the metropolis and provincial towns are fully as entitled to special consideration as the navvies employed on certain public works.

And this point naturally leads to the consideration of the extension of the savings-bank business. Out of 13,763 post-offices at the end of 1877 in the United Kingdom, there are only 5,668 at which banking business is transacted; that is, at considerably less than half the offices, deposits cannot be received. And from what the report of the Postmaster-General states, it appears that the department considers this number sufficient for the wants of the community; for it is said, "it would seem that the facilities now afforded to the public are all that can reasonably be desired with due regard to the interests of the State," and the report continues, "it would, therefore, seem expedient that the collection of savings in retired and sparsely-populated districts should be left to the agency of Penny Banks." And as a confirmation of this view, the opinion of a schoolmaster in a large town is given, who states: "No doubt if special arrangements were made for receiving deposits at Post-offices, and, where practicable, for opening them in the evening, many more would deposit; but, to meet the unthrifty, the bank must be opened in the neighbourhood of their homes, and this can only be done by Penny Banks." Now this opinion seems to show that, although there must always be room enough for Penny Banks, yet that it would be well if Post-office savings-banks were more numerous, and if arrangements could be made for them to do business in the evening. At present there is an average of a Post-office savings-bank to every twenty-one square miles, and we confess we think that they might be more numerous. The "interests of the State" mean, we presume, the cost, and we do not see how the cost of these banks would weigh upon the State, when there are plenty of intelligent post-masters and post-mistresses who could receive deposits. It is quite certain that the more numerous these banks are the better, because there can be no doubt that just as the number of public-houses often afford opportunities for drinking, so will the number of banks afford chances of economy.

There is also yet another question of great importance in regard to which we gladly see that the officials are quite prepared for a change. And this is that the limit of deposits should not exist as at present. Now, as most know, after 150*l.* has been deposited no more can be paid in, and after the amount has reached 200*l.* no interest is given, and it is also a condition that not more than 30*l.* may be deposited in any one year. Now, why 30*l.* should be fixed on as a limit of yearly deposits is a mystery to us, and why say a 500*l.* limit could not be fixed upon it is equally difficult to see. Further, when the limit is reached the sum in the bank should be invested in Consols, unless the depositor on receiving notice to this effect desires to withdraw the money standing in his name. In Italy, for example,—not a country very remarkable for its social improvements,—we find that "facilities are afforded for transferring money to the public funds," and in France a Bill has already been brought into the assembly both for the introduction of the Post-office savings-banks and the conversion of deposits into Rentes without charge to depositors. And unless we are mistaken this latter course is always adopted in relation to the ordinary savings-banks in that country. We are afraid that the present Chancellor of the Exchequer is too much oppressed by the quickly approaching election to bring about any such change as this. Perhaps when this great cloud has passed away something may be done in the matter. It is all very well to say we ought to be thankful for the facilities which the Post-office already gives us in this respect, but past favours are in this case all the more reason for future increases of them. Still, from whatever point of view we regard the Post-office savings-banks, they must be considered a most satisfactory social feature.

NEW BUILDINGS IN EDINBURGH.

Last week two of the most important buildings ever erected in this city were inaugurated,—the new Royal Infirmary and the Cathedral of St. Mary.

It was expected that the presence of royalty would give *éclat* to the ceremony at the former, but as circumstances did not permit of this, the Lord Provost, assisted by the University Professors and other dignitaries, performed the task in a simple and satisfactory manner.

With the character and aspect of the buildings our readers have been made familiar, both by description and illustration; but we may here remind them that the style adopted by the architect, the late Mr. David Bryce, R.S.A., is an adaptation of the Scottish Domestic, and that the pavilion system of arrangement has been followed. The site, which slopes to the south, and overlooks the Meadow Park in that direction, extends to 11¼ acres, of which 3½ are actually covered by the buildings. There are twelve medical wards, with accommodation for twenty-three patients in each; eighteen surgical wards, which each accommodate sixteen patients; and separate wards for the treatment of erysipelas, ophthalmia, &c., accommodating in all 600 patients, besides nurses and medical attendants. The amount of space allowed for each patient varies from 2,350 to 2,380 cubic feet, which is considerably in excess of that allowed in St. Thomas's Hospital, London, where the allowance is 1,800 for each patient. The cost of this great pile will be about 350,000*l.*, and it is so arranged that future additions may easily be made if required. The contractors have completed the work within three months of the time specified. In December, 1870, we gave a view and plans of the buildings, and next week we will give some further account of them.

The site of the vacated Infirmary is central, and in close proximity to the University, and it is probable that the authorities will take the opportunity of effecting an improvement in that locality.

The Medical Officer of Health bears testimony to the noble results which have flowed from the improvements in the Old Town, a scheme which has not only improved the aspect of the city, but greatly benefited the health of the community. He says:—

"The death-rate of the districts operated upon by the Improvement Trust has become steadily lowered since the completion of the clearances. The decrease in the mortality is estimated at 5 per 1,000 of the estimated population. The diminution in the number of cases of fever and other infectious diseases has been still more striking. Some houses have been pulled down which furnished annually at least thirty cases of fever. It must be remembered that the Corporation have only been able this year to afford the districts which have been operated on the benefit of an ample supply of water. This will still further tell on the death-rate in future years. To sum up, Edinburgh, which before the operation of the Trust had the reputation of a city with a high death-rate, and which regularly suffered from epidemics from fever, has now a low death-rate, as seen from the following figures:—Death-rate per 1,000—1873, 20·77; 1874, 22·27; 1875, 23·17; 1876, 19·62; 1877, 20·88; 1878, 21·53; and fever epidemics are practically unknown."

The cost of these improvements to the ratepayers has been about the same as that voluntarily subscribed for the new Infirmary. Further improvements are called for, and such facts as those stated are weapons of power to beat down the opposition of the niggardly, who grudge taxation for whatever purpose.

The consecration of the cathedral was a most impressive ceremonial. Admission was by ticket, and the whole available space was occupied by a congregation estimated at over 2,500. There were 250 clergymen in the chancel, including 13 bishops. The choir was augmented by numbers of other choirs, both from England and Scotland, and the fine solos in Boyce's anthem, from 1 Kings vii. 13, were rendered in a truly devotional manner. The full force of the voices was brought out in Handel's majestic Hallelujah chorus, which resounded through the long-drawn aisles with fine effect. The acoustic properties are remarkably good for a building of the kind, but even the magnificent voice of the Bishop of Peterborough could not penetrate to every nook and cranny, so that the effect of his eloquent discourse was lost upon many who were eager to hear him. The heating of so large an interior, to the making up of which stone so largely contributes, was no mean task, but it has been accomplished in a wonderfully successful manner. On all hands were to be heard expressions of admiration of this noble pile. At the close of the service sixteen sycamore trees were planted by the bishops and other dignitaries within the precincts, along the sides of a walk to be designated the Bishop's Walk.

We have from time to time described the building as it progressed, and may here say that the following illustrations of it have appeared in past volumes of the *Builder*, viz.:—Exterior view of design at first selected, 1873, p. 167; interior view, 1873, p. 167; exterior view as executed, 1874, p. 1032; and plan, 1875, p. 51.

The monument to the late Dean Ramsay to the east of St. John's Church, and facing Princes-street, has been erected. It is a notable feature amongst the monuments of the City, alike as respects design, size, and richness of detail. It was designed by Mr. R. Anderson, A.R.S.A., and executed by Messrs. Farmer & Brindley, of London, and consists of a granite cross rising to a height of 26 ft. The base consists of three stages, each sloped inwards, and from these starts a richly-sculptured shaft, supporting a cross having a width of 8 ft. 6 in., the arms of which are bound together by four arcs of a circle having a diameter of 6 ft. The face of the cross is divided into panels, in which are inserted bas-reliefs. Those on the arms of the cross represent the Passion, Resurrection, and Ascension. And those on the shaft, six in number, set forth the acts of charity. The remainder of the shaft and cross is covered with sculptured ornament of the same type as that of the twelfth century, to be seen at Jedburgh Abbey. The granite is from Shap, in Cumberland, and the bronzes have been cast by Elkington.

A new Free Church is projected upon a site facing the south end of Wardie-road. If erected on the exact spot fixed upon, it will stand in the way of an extension of Wardie-road southward, an extension the advantages of which are obvious, and which, if not interfered with, is in the womb of the future. The idea seems to have been to secure the most conspicuous position for the church, but if placed a little to one side it would be sufficiently prominent, standing at an angle where two thoroughfares would cross.

Many positions have been occupied by buildings, to the ultimate detriment of a neighbourhood, which might have been prevented by timely warning.

ENGLISH SCULPTURE: A VINDICATION.

It is painful to notice the constant lament which is made over "the languishing condition of English sculpture"; and, certainly, looking at the forlorn aspect of the galleries of fine art supposed to be devoted to sculpture, the wail might seem more than justified. But it is presented in a manner leading to the conclusion,—as, indeed, is too often pronounced,—that for the most part, with a few noteworthy exceptions, sculpture has been a poor, sickly plant amongst us, unsuited to the genius of our artists; that sculpture is in a "past-praying-for," pitiable, hopeless sort of condition. Even if this were true, which we cannot admit, it would not be difficult to show that the blame does not rest with our sculptors as a class of artists unequal to the high demands which sculpture makes upon them, but with the hard, up-hill conditions under which they have had to struggle for the true manifestation of their genius, and too surely to fail so far as contributing anything like what they might have achieved towards the formation of a really noble school of English sculpture.

First, then, as to our sculptors themselves, and the implied inaptitude of the English for excellence in sculpture. We need not go back to Mediæval work,—as our concern is wholly with the moderns,—save to pass the remark that, perhaps, the saints and Madonnas, or other sculpture of our cathedrals, &c., exhibit as much grace, purity, and sweetness of expression as can be found in similar figures anywhere else, though we lay no particular stress upon this, as it is now almost impossible to tell precisely who were the designers, — who the workers, — in these Mediæval works; the wonder being that in the architecture and the cognate sculpture of the period, an excellence and

perfection were attained in their ecclesiastical development when painting seemed in its infancy, and sculpture as a secular art almost non-existent; but since these Mediæval periods it must be admitted that little native sculpture worthy of the name existed amongst us; and it would be difficult, perhaps, to fix upon any name, until we arrive at that of Flaxman, which could be regarded as in any degree claiming a marked place for sculpture in this country. His position as a great sculptor is willingly conceded, almost to the disparagement of his successors, and is never questioned by native or foreigner. While his inspiration was Classic Greek, yet he gave clear indications of an untrammelled power which made his work modern, and plastic to all those human sympathies which cling about our history and literature, and domestic and religious life; and it was precisely in this character that he may be called the father of modern English sculpture, and, as we contend, has had most worthy successors.

The case of Flaxman illustrates exactly what we have to say about the so-called failure of our English school. With him was the genius apparently equal to the highest demand which could be made upon it, but allowed to lie fallow, for the most part, in an atmosphere of non-appreciation. What great public works did he execute? what encouragement of the promise he gave of power in imaginative work of the highest order? As all know, Flaxman is chiefly to be known and studied in plaster models, never commissioned, and in "outlines" as book illustrations, to which he had to resort as a means of livelihood. Priceless these may be in their way, but had the time been ready for the man, what might he not have done under the spur and stimulus of healthy public appreciation and adequate encouragement? In him alone, not only the dawn, but the actual foundation of a noble English school might have been found which would have left no room for the after-reproaches to which we have become so accustomed. But these surrounding elements were wanting,—the opportunity was lost,—and herein lies the clue to the whole matter. England since the days of Flaxman has had a succession of sculptors,—not English alone as to nativity, but of our race and school,—who have exhibited nearly every power capable of rendering the art great, delightful, famous. If is needless to name the many, dead and living, who gave evidence of being able to sustain the glory of sculpture in its worthiest manner, but Chantrey, Bailey, Gibson, MacDowall, Lough, Foley, Stevens, among the departed will suffice. Sir Coutts Lindsay rightly pointed out that Gibson got on the wrong tack in seeking his inspiration so purely in the classic past, and in this failed to vivify his art, or touch the true chord which all art should, of being an interpreter of, and an inspiration of its own time. But the real failure all along in sustaining a great school of English sculpture has been very much as it was in the case of Flaxman. One more modern instance will suffice for all,—the greatest name, we take it, since Flaxman, nor yielding, in our opinion, even to his, that of Foley, whose lamented decease certainly was a loss in the ranks of our sculptors which has not yet been made good. As with Flaxman, so with Foley, — exhibiting in a high degree a rare power in ideal sculpture: witness his "Ino and Bacchus" and "The Mother,"—the grace, sweetness, and perfection of both works being such as would have made a world-wide reputation in a more fortunate era, — it is well known that he had to abandon, very largely, the production of ideal work, simply because it fell dead, uncommissioned, upon his hands, and had to resort to monumental portrait-work as best calculated for financial success, though happily, in this, by throwing into it the energy of his genius, he achieved a splendid success, his "Stonewall Jackson" and "General Outram" being perhaps unsurpassed as works of their class. But here, again, was ideal genius to a great extent lost, thrown away, for the want of the encouragement and patronage needful for its display. We might advert to numerous other names, and yet more melancholy instances, and point to the excellent promise of their early ideal work, which, in the unkindly atmosphere of their time, had little or no fruction; but the same tale recurs all through the history of modern sculpture,—not the want of men of genius of high order, but the blighting, deadening effect of an almost total want of public-spirited appreciation taking the form of honouring and rewarding their work by its being commissioned, and thus passing into the history of the country as one of the glories of the time.

This, then, is the point we enforce, that English sculpture has languished less from deficiency in our sculptors themselves than through the combination of conditions wholly fatal to the generous development of a great school of sculpture such as assuredly we might have had, had the circumstances been different. Artists must live, but this, as a rule, can only be by the public or private appreciation of their work in a way to secure adequate monetary success; for the fickle genius of art seldom draws its votaries from the wealthy and well-to-do classes who pursue art wholly and solely "for art's sake." Sculptors, however, of course, suffer in a peculiar degree from not being able to make their works a readily saleable commodity when thrown upon the market, as it were, to take their chance of purchasers. The study, labour, and expense involved in getting out the plaster model for exhibition cannot be gone through many times,—however glorious the conception,—if the result is *nil* in regard to getting a commission which will honourably pay. Hence, without ensured patronage sculpture must languish. Now, this sort of patronage can only arise from Governmental, Royal, Municipal, or Collegiate sources on the one hand, or the generous support of the wealthy and noble on the other. As far as the public good is concerned, in embuing all classes with a love for, and pride in art, the former is the preferable, and it cannot be regarded as other than a shame to England that, save to a very limited feeble extent, have Government, our great civic corporations and companies, or our noble collegiate institutions, given to sculpture the opportunity needed for its just development and display. With this, the response from our sculptors need have been nothing else than of the most noble and enduring kind, and there would have been no place for the reproach now heaped upon it that English sculpture has for the most part been rather a poor affair at the best.

Not only, then, is the failure of the English school,—if failure it can be called,—not to be ascribed to the lack of special genius on the part of our sculptors, but we would go further, and say that English sculpture has exhibited, in a rare degree, some of the best attributes of artistic work, which have been rather wanting in some foreign schools popularly regarded as far before our own. While preserving a good deal of the classic tradition and ideal with much advantage, it has yet exhibited a freshness, a naturalness, and, above all, a wonderful purity, sweetness, and even spirituality in the treatment of the nude which cannot easily elsewhere be matched. French sculpture in the nude seems too often pervaded by a *motif* that, to say the least, is too much of the flesh, fleshly, if nothing more; and the grace it displays, however facile, has something of the posing of coquetry about it as opposed to simple naturalness. About German sculpture there is a sombre gravity, almost severity, which too much diminishes its naturalness to make it an example to be followed. The modern Italian school has made great advance and shown some fine work, though lending itself to a good deal that can scarcely be called anything but frivolous. But, all things considered, we should be inclined to place the English school, for the characteristics we have named, in the first place. Not to mention Flaxman or Foley again in this connexion, we may well refer to the "Eves" of Bailey and MacDowall, the "Reading Girl" of the latter, the "Dorothea" of Bell, the "Sabrina" of Marshall, and the beautiful child-sculpture of Munro. Of all the fine arts, sculpture lends itself less easily to the meretricious, and any appeal to the sensational clap-trap power of catching ephemeral success, and in a marked degree English sculpture has happily remained free from any leaning to this indignity, though as to much, it must be honestly confessed that it can only be called mediocrity triumphant.

While, then, our lost opportunities from the causes we have named are irreparable, there is yet perhaps no reason to conclude but that if the sources of patronage were open in the directions we have pointed out, genius would be forthcoming equal to the demand.

There remains the important consideration, what are now the most legitimate subjects for our sculptors? Monumental art we need not particularly refer to as always furnishing a wide field for sculpture, both in subject and treatment. It may be of the highest, or very much the reverse, but its scope and character are too well defined to need for further remark here. It is not to be expected that there will be any uprise of religious art in sculpture in any great sense of the word. The genius of Protestantism and the modern spirit is against it, and though appearances are sometimes the contrary, we have, as a nation, happily, become too permeated with a belief in the spirituality of worship in Christianity as seen in the earliest and purest ages, to put much faith in art as an aid to religion, though, as a matter of sensuousness, the costly fanes, the splendid ritual, allied with all the glories of music, painting, and sculpture of some religious communions, would otherwise seem to offer a great opportunity for art. But the imperishable records of the sacred story will ever remain those which will furnish the most living embodiment of human hopes and interests through all their scale of pathos and sublimity, and hence, in some shape or form, must always exercise the highest influence in all art. The Classic Pantheon and mythology are less and less likely to furnish our artists with any real inspiration, and are as dead to us as the apocryphal legends of the saints. But if art, to be living, must be the outcome and expression of the actual human thought and emotion of our time, then we have, besides the sacred classics, the creations of our poets, dramatists, and imaginative writers of all grades; these yet live, and form our lives, and are interwoven with the struggle and heroism of everyday life, as well as with the greater epochs of history. These furnish endless resources for the inspiration of art. We would only advert to one instance as illustrating how two arts can become wedded in a mutual interest for all time, the beautiful sculptured group from Wordsworth's poem, "White Doe of Rhylstone."

A GERMAN VIEW OF CONTEMPORARY ARCHITECTURE AND INDUSTRIAL ART.

One of the principal causes of our undecided attempts in art is the feebleness of Architecture, the mother of all arts. The proper function of the mind, control over matter, is represented by art, and appears in an especially symbolic manner in architecture, which, not without intuitive appreciation, has been called "frozen music"; for, as music makes sensible æsthetically the limitation of time by space, so architecture makes us feel the limitation of space by time. This most universal and most abstract of the fine arts sets forth the most clearly of any the balance of parts, the harmony of proportions, which constitute the fundamental principle of all art. When architecture is poor, we may be sure taste is debased.

Architecture, however, is not only the theoretical principle, it is also the practical foundation of the plastic arts; for it prepares a dwelling for them. So soon as architecture is withdrawn from public buildings, and is found only in private life, art on a large scale becomes at once homeless and objectless, and a fugitive in its native land. For what, indeed, mean all the statues, all the historical pictures, which the artist elaborates in the quiet of his study, and which the State knows not where to place when purchased? A society which can do no better than locate even the productions of contemporary art in museums and picture-galleries is a society essentially inartistic; for such edifices are really not the fruit of art,—rather are they like cabinets of natural history, where the poor statues and pictures are mustered in groups and and series, like the stuffed animals in their glass cases. An artistic image needs an assembly-hall, a forum, a church, an hôtel de ville, a family hall, or indeed any artistically-bounded space, which of itself subserves a definite idea, and is thus distinguished from the commonplace of every-day life, as a stage upon which the intellectual life of art may expand and develope. But where are we to find such a frame at the present time? Never, perhaps, was there so much building as now, and never was architecture in such a low condition. One ruling idea, a common sentiment, no matter of what kind, whether of God or of man, of religion or of country, must animate the life of the people, if architecture is to flourish, and not to perish through want of a proper object. Where architecture has no true object, art is left without any solid foundation, is no longer fostered by the nation, and no longer re-acts upon the nation with an elevating and refining influence.

This is more or less the case at the present day. We have no longer an architecture because we have no longer a *cultus*, and we have no longer a *cultus* because the intellectual movement has departed from the Church and centred itself in humanism, which, however, is as yet invested with no recognised social form. The epoch of "religious art" is over, and religious feeling, however powerful, will not bring it back. This is the reason why all modern churches are but, as it were, disinterred corpses, which harmonise so little with the time that they borrow their style from every period, and exercise not the slightest influence over contemporary architecture. Such facts are enough to convince every one who is not blind that the religious feeling is dead; for a *cultus* which no longer manifests itself in monuments is already dismissed. It is in vain that our architects take refuge in all forms of building; a truly-monumental style is not one that is sought and found. It is spontaneous, and like the conception to which it must owe its birth. No single individual can suffice: a whole people is necessary for it to strike root. It grows, no man knows how, like the crystal. It arises from the common sentiment of a whole race, which is dominated by the same idea, and is striving towards the same goal. It is not the pyramids only which have been built by a whole people.

We live, then, in an interregnum, in which the constructor has lost the guiding principles and the aim of his art, and has ceased to have a perception of the fundamental law of art, and especially of building art,—grouping. Where the modern does not imitate and imitate badly, he builds barracks and factories, even when he fancies he is building palaces. There is no longer an organism, no longer a ruling idea, which divides his house into its several parts, there are no longer prominence and recess, no longer motive and climax. There is nothing but a wearisome series of lines and windows. In such a state of things it is vain to seek for guiding principles in architecture, for there are none to find, and industrial art is abandoned to a hopeless confusion of ideas.

Further causes for this confusion which characterises modern industrial art are to be found in the increase of manufacture, the division of labour, and the employment of machinery. Objects of industrial art cannot but suffer from the piecemeal way in which they are produced. The more work is subdivided the more mechanical it becomes; in precise elaboration of parts the excellence of the *ensemble* is apt to be lost sight of, and art defeated. At least this is the case while our modern methods of production are yet new. The drawback is, however, only momentary, and will gradually disappear, and advantages quite as valuable as this drawback is injurious will arise as industry developes. Modern industries established with the view solely of immense production aimed at the greatest possible simplicity at first, and thus the objects manufactured were barbarously inartistic. This evil will, however, diminish more and more as machinery and technical processes are perfected. The highest embellishment comes at last to cost less trouble and labour than did at first the production of the least elegant forms. The caprice and individuality of hand-workmanship, indeed, disappear, but, on the other hand, technical perfection, the facility of multiplication, and consequent cheapness and accessibility to all, favour the spread of good art forms. When a thorough mastery of material is acquired in manufactures, then from the new methods of production will arise a true art style. This has, in fact, already commenced, and industrial taste, in spite of all hindrances, has for years been making decided progress.

Margate Sea Bathing Infirmary.—Prof. Erasmus Wilson is wisely acting as his own executor, and using his money in the public service. Last week he made a munificent offer to the court of directors of the Margate Sea Bathing Infirmary (for scrofula). Mr. Wilson announced through the chairman, Col. Creaton, his desire to erect at his own sole cost a new wing containing wards for nearly seventy patients, a tepid sea-water swimming-bath, and a chapel containing seats for 300 people. A resolution accepting with the warmest cordiality and gratitude this act of benevolence, the cost of which will probably exceed 20,000*l.*, was unanimously passed by the Court.

THE NEW BUILDINGS AT THE *TIMES* OFFICE.

The rebuilding of the *Times* office, which has been in progress during several years, is now approaching completion, the elevation of the north side of the quadrangle in Printing House-square, which forms the main block, having been covered in within the last few days, and the stone pediment which surmounts the elevation, enclosing the royal arms and groups of carving, is also nearly finished. The principal entrance to the printing department is in this block (the block facing Queen Victoria-street, where the editorial and advertisement departments are now conducted, having been completed some time ago), and here, above the spacious new doorway, in Portland stone and polished granite, the well-known white marble tablet with its inscription, presented to the *Times* proprietors many years ago, in commemoration of their exposure of a gigantic commercial fraud, has just been re-erected. The only old part of the building which has been allowed to remain standing is the west side of the quadrangle in Printing House-square; it is, however, in course of reconstruction internally, whilst a new roof is superseding the old one. In this part of the building, if we are rightly informed, the eminent owner of the property, Mr. John Walter, M.P., was born.

The foundation-stone of the new part was laid in February, 1872, by Mr. Macdonald, who was intimately associated with the "Walter Machine," and it is worthy of record that throughout the long period during which the buildings have been in progress there has been no interruption whatever to business as respects the daily production of the *Times*, or to the manufacture of the "Walter Machine," which is carried on in a factory in the Queen Victoria-street basement. It is satisfactory further to hear that from the commencement of the works to the present time there has been no accident. The structure is one of the strongest and most substantial in the metropolis, and it may be added that the whole of the bricks for the building were manufactured specially for the purpose on Mr. Walter's estate at Bearwood, in Berkshire.

The architect of the building is Mr. Deacon, who acts in a similar capacity for Mr. Walter on the Bearwood estate, where building to a considerable extent is said now to be in progress. The building from the first has been carried on by workmen in the employ of the owner, under the superintendence of Mr. Deacon and his assistants.

Within the last few days the electric light has been introduced into the "making-up room," a large apartment on the ground floor of the east side of the quadrangle in Printing House-square. The illuminating power is most effective, artificial daylight being apparently shed over the whole interior. The electric light has for some time past been in operation in the machine department of the establishment.

THE NEW BUILDINGS ON THE SITE OF ALL HALLOWS CHURCH, BREAD-STREET.

The new warehouses and other commercial premises which have been erected on the site of the ancient Church of All Hallows, where Milton was baptised, have just been completed. They are in the Queen Anne or Old English style, the materials being red brick, with Portland stone dressings. The principal frontage is in Watling-street, and is about 80 ft. long,—the same length as the old church which formerly stood upon the site. The elevation is carried up with ornamental brick piers, with panels inclosing devices and heads in terra cotta under the main cornice, and at the top of the second-floor windows. The building contains ground-floor and three lofty stories. Above the ground-floor there is an enriched frieze, containing moulded and artistic emblems and designs, upon which rests a cornice. The first and second floors contain two and three light mullion windows, having Portland stone shafts, a string being carried across the elevation above both floors. The elevation is surmounted by three lofty pediment gables, and two rounded gables, forming the third story, which has two-light mullion windows. The several gables inclose ornamental work in terra cotta. There are five wholesale sale-rooms on the ground-floor, with a central arched entrance to the premises on the upper floors. The brick piers and other parts of the elevation rest on granite bases. The Bread-street elevation is about 30 ft. in length, and uniform in its architectural character with the Watling-street frontage, and is surmounted in the centre by a pediment gable. At the angle of Watling-street and Bread-street there is a stone slab inserted in the wall, containing, in a circular niche, a sculptured bust of Milton, under which is the inscription "Milton," and "born in Bread-street, 1608. Baptised in Church of All Hallows, which formerly stood here, *ante* 1878."

The architect of the building is Mr. Alexander Peebles, of Salters'-hall-court, Cannon-street, and the contractors were Messrs. Scrivener & White. The buildings, and another immediately adjoining, cover an area of a little more than 30,000 ft., the site being sold for 32,000*l.*, out of the proceeds of which two or three new churches have already been erected in different suburbs of the metropolis. The buildings now in course of erection in Bread-street, immediately adjoining those described, consist of lofty warehouses and offices, in Portland and Bath stone, and containing four floors. They have a frontage 45 ft. in width, and are upwards of 50 ft. in height, with a deep basement. Mr. A. Peebles is the architect, and Mr. Morter, of Forest Gate, is the contractor.

NEW WORKS AT ST. BARTHOLOMEW'S HOSPITAL.

The new additions to St. Bartholomew's Hospital, consisting of a library, practical class-room, and museum, which have for some time been in course of erection in Giltspur-street, are now almost completed internally, and were opened on Monday last by the Prince and Princess of Wales.

The external features of the building, which presents a Classic elevation in Portland stone, have already been described. The buildings have been about two years in course of erection (the plans were signed by the contractor in September, 1877), and stand upon the site of some houses which fronted Giltspur-street. Although the new stone front is visible from Smithfield, the approach is through the old gate from the quadrangle built by Gibbs in 1730. The façade is nearly 100 ft. in length, and is 75 ft. in height from the pavement to the top of the balustrade. Within the building the basement contains spacious lavatories, a cloak-room, a students' meeting-room, and class-rooms. The walls are partly of glazed bricks, for the sake of light. In the upper parts of the building the walls are distempered in a light colour, with a chocolate dado. On the ground-floor is the library, containing an upper gallery, and capable of holding about 20,000 volumes; some of the cases for the books stand at a right angle to the walls, thus not only forming a large additional space for books, but also providing convenient recesses in the room. This apartment is 96 ft. long by 36 ft. wide and 20 ft. high. The floors and cases are of polished oak. On the first floor is a large room capable of being divided into two by a sliding-door. Along the walls are tables, with lamps and sinks, at which 150 students will be able to work with test-tubes and the other appliances for chemical analysis. Above this floor is a lofty well-lighted museum, somewhat larger than the library below, containing two galleries, in which it is intended to place the large and valuable collection of anatomical specimens. The floor of the museum is in wainscot parquetry, in narrow widths, diagonally laid, with pitch-pine borders. It was originally intended that the gallery-floors should consist of glass, but this has been abandoned, and they are now laid with pitch-pine. The air-tight glass cases are framed in ebonised mahogany. There is a lantern roof of glass and iron. The buildings have been designed by the architect to the hospital, Mr. Edward I'Anson. The builder was Mr. Brass, and the clerk of works, Mr. Streeter. The elaborate fittings have been executed by Messrs. Patman & Fotheringham, and the heating and ventilation by Messrs. Herring, of Chertsey.

The rebuilding of the medical theatre and school is to be commenced almost immediately This old block is only one story in height, but the buildings for the new theatres and school are to be carried to the same height as the library and museum, which they will immediately adjoin, and of which they will form a continuation in an eastward direction. There

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will be two new theatres, one for Anatomy, to accommodate 500 pupils; and one for Medicine, to seat 250. There will be a new dissecting-room, in which 250 students will be able to practise dissecting at one time. New professors' rooms will also be erected, and this part of the work is to be commenced next year. The old theatre will be taken down in a few weeks.*

NEW DOCKS FOR THE LONDON, CHATHAM, AND DOVER RAILWAY COMPANY.

THE London, Chatham, and Dover Railway Company are about to enter into an important undertaking in connexion with their line of railway. The directors have just become the purchasers of a large area of land on the Medway, at Rochester. The site is said to be a space of nearly 100 acres. Upon a portion of this land the company contemplate the construction of extensive docks and wharfs for shipping purposes, whereby they propose to add materially to the traffic of the railway by inward and outward cargoes shipped at Rochester. The erection of large warehouses forms a part of the project, and also a spacious new station somewhere about the centre of the town of Rochester. The docks will be in direct connexion with the company's main line.

THE WIDENING OF GRAY'S-INN-ROAD.

THE Metropolitan Board of Works are about to commence the works in connexion with the widening of Gray's-inn-road, which, although one of the busiest thoroughfares, as regards vehicular traffic between Holborn and the north, is at its southern extremity yet one of the narrowest and most inconvenient arteries in the metropolis. The opening out of the road will take place on the east side, and will extend from the corner of Holborn to the new Holborn Town-hall, which has just been erected at the angle of Clerkenwell-road, which forms part of the new thoroughfare leading from Oxford-street to Shoreditch. The first portion of the materials of the houses required to be removed in order to carry out the improvement are to be sold in a few days. They consist of two houses and shops having a frontage to Holborn of more than 20 ft. in width, thus admitting of Gray's-inn-road being widened to that extent, together with the materials of about twenty other houses and shops in the last-named thoroughfare running northwards. The materials of the remaining property, extending to the new town-hall, will be sold as the leases run out.

NEW TOWN-HALL FOR PAISLEY.

THE foundation-stone of the new Town-hall for Paisley was laid on the 22nd ult. by Mrs. Clark, of Gateside, mother of the late Mr. George A. Clark, who bequeathed 20,000*l.* for the purpose of erecting the building. It seems that after purchasing the site, which is contiguous to the Abbey, it was found that the sum remaining in hand would be insufficient for the erection of an adequate building; but, with commendable generosity and public spirit, the Messrs. Clark, of the Anchor Thread Works (brothers of the deceased donor), offered to defray the additional cost. The total outlay will be between 40,000*l.* and 50,000*l.* The buildings will consist of a large hall occupying the centre of the block, 130 ft. long by 60 ft. wide, and affording accommodation for about 2,000 persons,—1,200 on the ground-floor, 400 in the balcony, and 400 in the upper gallery. There will also be a lesser hall, 53 ft. by 30 ft., calculated to seat about 300 persons. In addition to these, by the special direction of the deceased donor, there will be a public reading-room, smoke-room, &c. The main front and entrance to the new hall are in Abbey-close, and immediately facing the Abbey Church grounds. The contractors for the building are Messrs. Morrison & Mason, Glasgow. When completed, which is expected to be in about two years' time, the hall will be formally handed over to the magistrates and Town Council for the use of the town. The hall will have a large tower, with clock and peal of bells.

On the day of the ceremony, Provost Mackean, on behalf of the Town Council, presented Mrs. Clark with a gold trowel, bearing a suitable inscription. Messrs. Morrison & Mason, the builders, presented an ivory mallet, mounted with gold; and Mr. W. H. Lynn, the architect, presented a gold plumb-level.

Some additional particulars of the building, together with view and plans, will be found in our volume for last year (pp. 1118, 1121).

* In excavating for the foundations, two large stone coffins were discovered. One of them was preserved without breakage, and has been placed in a permanent position on the landing leading to the museum.

SCHLOSS TRAU'SNICHTS, LANDSHUT.

THE castle or palace called "Trau'snichts" at Landshut, from the German words "Trau es nicht," "trust it not," is one of the most interesting buildings of its class in Germany. It was probably originally built as a castle, but although situated on a very lofty hill, it gained such an unenviable notoriety from the fact that whenever besieged it was invariably captured by the assailing party, that the advice "Trau es nicht" absolutely became its name, and it must have been given up as a fortress as early as the commencement of the sixteenth century, and from that time it became the chief residence of the Dukes of Bavaria before they removed their capital from Landshut to Munich.

Castle Trau'snichts is a large irregular building enclosing two courts, and is of every conceivable date. The principal tower shown in our illustration in itself probably contains work of three distinct dates, viz., the thirteenth, fifteenth, and sixteenth centuries. It is constructed of brick covered with plaster; the walls are of an immense thickness. The parapet at the top is painted with the oblique chequers peculiar to the Bavarian arms, and remains of decorative painting may be traced upon other parts of the plaster.

The interior of the building is remarkably interesting, especially the chapel, which contains some of the best examples of German sculpture of the latter part of the thirteenth century to be found anywhere. We intend giving an illustration of this remarkable chapel in a future number.

The stoves in some of the apartments are remarkably fine, several of them dating from the commencement of the sixteenth century. All the principal apartments are painted in fresco by Peter de Witte (or Candido), a Bavarian artist of the end of the sixteenth century. Although rather coarse, and now in a sad state of decay, these decorations are effective, and the arabesques well designed.

The castle is no longer used as a residence, but is still kept in fairly good order, and is the receptacle for official documents and records.

BROOKE CHURCH, RUTLAND.

THE Brooke valley, though little visited, is one of the most interesting localities in the county of Rutland, and the church, though not large, is one of its most valuable ornaments. A wide extent of grass-covered mounds on the prettily-wooded margin of the "brook" marks the site of the only conventual establishment the county ever possessed, the Augustine Priory of St. Mary, at Brooke, and a beautiful Elizabethan gatehouse remains a memorial of a once magnificent mansion, built on the site of the monastery soon after the dissolution. It was the work of Sir Andrew Noel, whose taste in architecture (hereditary in the noble family of which he was the head) is evinced in this and other buildings in the neighbourhood, especially a second mansion at a short distance from Brooke. The older portion of the church,—the tower, nave, arcade, and south door and doorway, are of the Transition period, and are believed to be contemporary with, if they did not form a part of, the earliest conventual buildings. The more recent portions are of the time of James I., and contemporary with the work of Sir Andrew Noel, at the Priory. The church was at this period remodelled, on a plan not uncommon in churches of the period in the locality, the double nave and double chancel, and fitted with oak pewing and screens of great beauty, the "communion pews" of the chancel shown in our illustration, being of especial interest.

Amongst other curious remains in the church are a tapestry altar-cloth, a log-chest, and some fine locks and other ironwork.

The work of restoration, which was urgently needed, the church having fallen into dangerous dilapidation, has been caried out under the personal direction of the Right Hon. Gerard Noel, M.P., H. M.'s First Commissioner of Works, the necessary funds having been provided through the exertions of the Lady Augusta Noel.

The architects employed were,—for the chancel, Mr. Christian, architect to the Ecclesiastical Commissioners; and for the rest of the church, Mr. Tait, of Leicester.

HOUSE OF THE FOREST OF GLEN TANA, ABERDEENSHIRE.

THIS charming glen has history dating so far back as A.D. 800. Christianity was in the eleventh century introduced into this part of Scotland by Margaret, wife of Malcolm Ceanmore. The calendar of Scottish saints shows that the lands of Glen Tana were given to St. Lesmo as hermitage. Tradition still points out where he chose his cell, and on this picturesque spot there has always been a sequence of buildings suited to the varying habits of the times.

In later years an important addition to the then farm-house was made by the Earl of Southesk, who had taken a lease of the shootings. When the noble owner the Marquis of Huntly married the elder daughter of Mr. W. Cunliffe Brooks, M.P., the lease was made over to that gentleman, and then, under the superintendence of Mr. George Truefitt, architect, of Bloomsbury-square, London, additions were made which have perfected this residence in a very complete manner, the whole of the buildings seen in our engravings being his work, except the one gable at the extreme left hand. The builders were Messrs. Warrack & Daniel, of Aberdeen, and the clerk of works works was Mr. Stuart, of Camden-street, London.

The engraving shows the south-east view; the principal front is to the west, where there is the entrance verandah of unhewn pine stems. It overlooks one of the lawns, with its background of firs (showing glimpses of blue hills through their branches). Over the entrance is the hospitable motto, "PATET JANUA COR MAGIS." The drawing-room, 30 ft. 6 in. by 20 ft., and 14 ft. high, opens into the billiard-room, 30 ft. by 22 ft. high (neither of these appears in our view), out of which last, passing through an ante-room, one comes to the ball-room. This fine apartment, to the left of the tower in the view, measures 60 ft. by 30 ft., exclusive of the large bay window and a recess for a bronze figure of Cassandra from the French Exhibition. The roof is an open one of pitch pine, the cusped principals rising from polished granite pillars from Birsmoor. The windows of this room are somewhat remarkable, being of ornamental tinted glass, with a large square in each of plate glass with bevelled edges. Out of the ball-room is an American bowling-alley, 90 ft. by 30 ft., and over this eight bachelors' bedrooms, with bath-room and hot and cold water to each bedroom. The tower leading to these rooms, and as the gillies' entrance to the ball-room on state occasions, is one of the most noticeable features of Glen Tana, built like the rest of the house, all of grey granite from the forest.

The principal bed-rooms do not show in the engraving, except Mr. Brooks's, which is the one to the left with the projecting window and pointed roof.

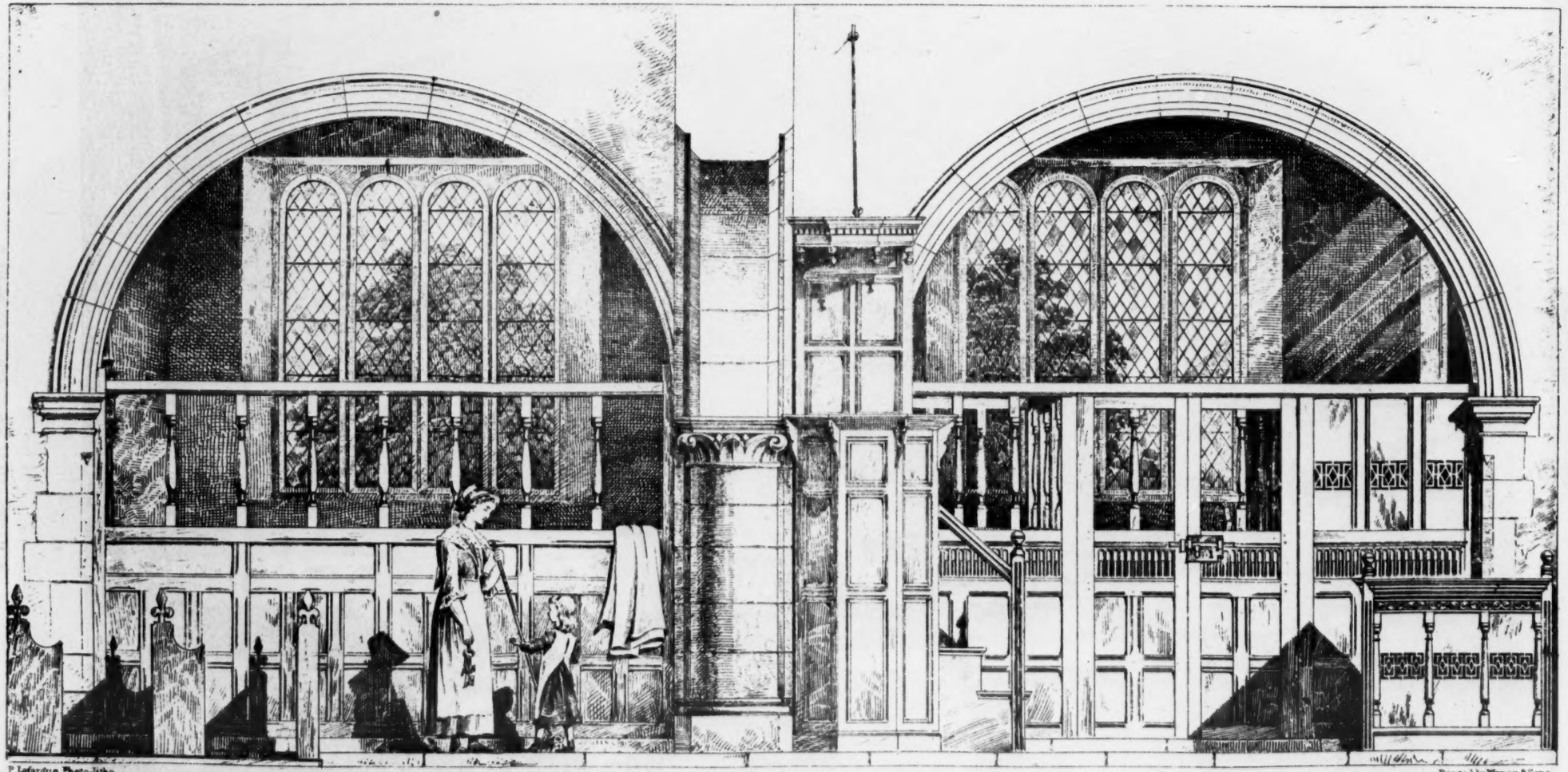
Besides the house, Mr. Brooks has, with Mr. Truefitt's aid, erected most complete stabling, kennels, deer larders, lodges, dairy, houses for the keepers, bridges, and almost everything that he could want or think of, including the charming little church of St. Lesmo, formed out of the ruins of the "old laird's house," as it was called; and here, on the 5th of November, a few days before this number appears, Mr. Brooks will have been married to the eldest daughter of Col. Davidson, and great rejoicings will have taken place in the neighbourhood, including a grand ball at the Marquis of Huntly's at Aboyne Castle, on the eventful evening, and bonfires that night on all the surrounding hills.

A Literary Memorial.—The little house on the banks of the New River at Colebrook-row, Islington, long inhabited by Charles Lamb and his sister, has been neatly renovated by its present occupier. At the suggestion of Mr. Butterfield, the district registrar, a gentleman of literary tastes and acquirements, Mr. Webb, the well-known manufacturer of artificial mineral waters, has had the word "Elia" inscribed on the front of the cottage.

P. Lafargue Photo Litho

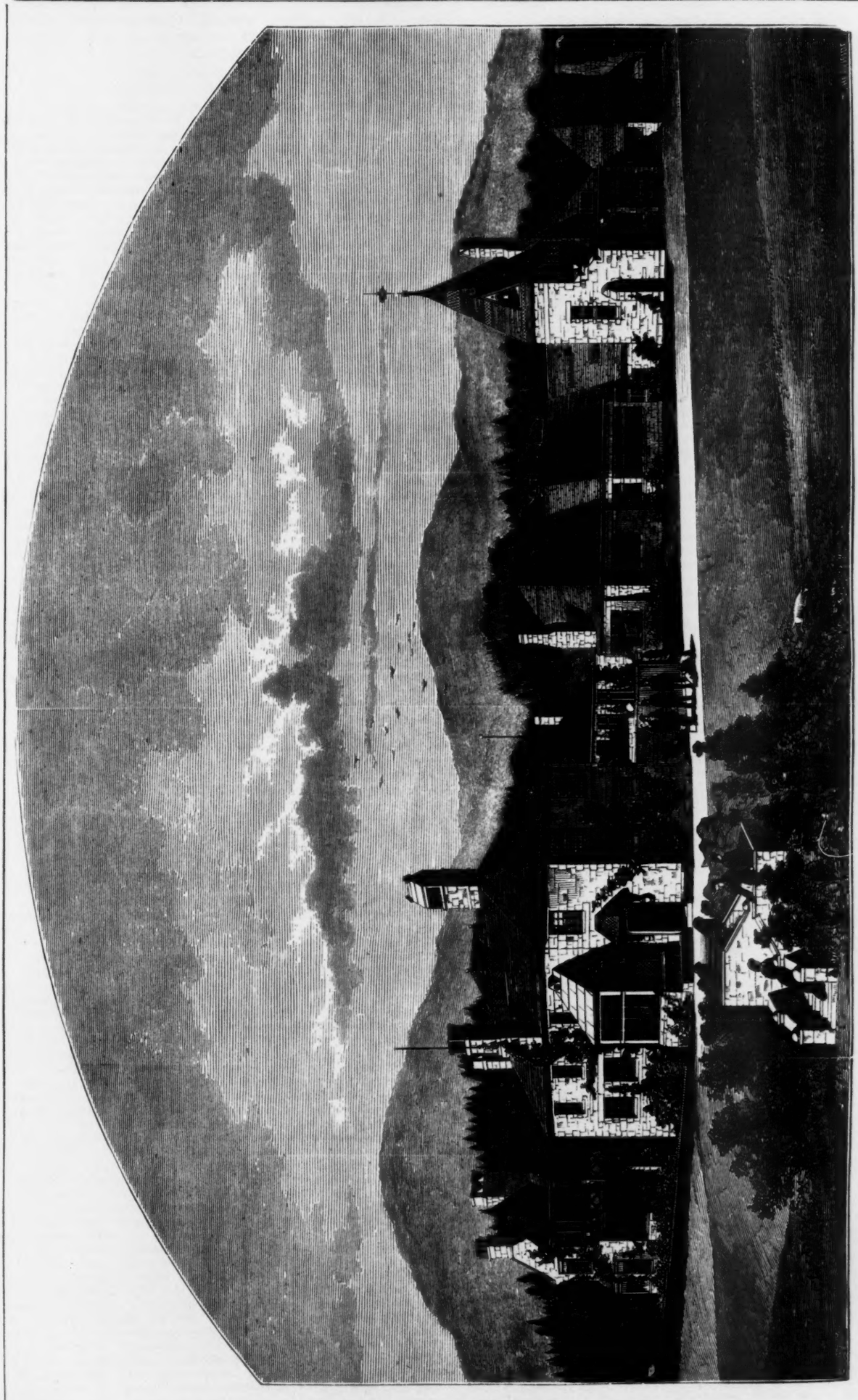
Printed by Wyman & Sons.

SCHLOSS TRAU'SNICHTS, LANDSHUT.



P. Lafargue, Photo-litho. Printed by Wyman & Sons.

BROOKE CHURCH, RUTLAND.—RECENTLY RESTORED.



HOUSE OF THE FOREST OF GLEN TANA, ABERDEENSHIRE.—Mr. George Truefitt, Architect.

ON THE IMPROVEMENTS SCIENCE CAN EFFECT IN OUR TRADES AND IN THE CONDITION OF OUR WORKMEN.

CITY AND GUILDS OF LONDON INSTITUTE FOR THE ADVANCEMENT OF TECHNICAL EDUCATION.

The inaugural lecture of this Institute was delivered by Professor W. E. Ayrton on Saturday evening last, in the large hall of the Cowper-street Middle Class School, Finsbury. The hall, which is capable of seating 2,000 persons, was well filled, and the lecture, which was illustrated by a number of interesting experiments, was evidently much appreciated by the audience. We give the salient points of it.

Professor Ayrton commenced by saying, Trade is bad, horribly bad! The causes of this depression, which meets us on every side, it is not difficult to ascertain,—inability to compete with the foreigner in the production of what England consumes, combined with inability to trade economically in his own markets. We cannot, for example, now grow corn or rear cattle as economically as we can get them from America; so that while our land produces ten million quarters of wheat a year, we import as much as thirteen millions, whereas thirty years ago we grew fourteen millions (more, in fact, than at present), and imported only four million quarters per annum. On the other hand, the Americans can manufacture machinery cheaper than we can sell it to them, in consequence of their high import duty of about 30 per cent. We might say that this state of things arose from their having on the other side of the Atlantic vast pasture-lands, a good climate, and Protection; while we are cramped for room, inundated with rain, and luxuriate in the blessings of Free Trade. It is not, however, only the demand abroad for English commodities that we see slowly dying away, but we find that even in our own country we are being gradually undersold in those productions which depend not on pasture-lands, not on climate, but on the use of labour-saving machinery,—the result of human ingenuity. Our disappointment in witnessing the gradual disappearance of the foreign market for our manufactures may possibly be alleviated by our belief that the example we are setting of perfect freedom in trade will be ultimately for the world's good. But no ray of consolation can cheer the remembrance that our Coventry ribbon trade, that once famous industry created by ourselves, has well-nigh departed to Switzerland, in company with the silk-weaving industry of Lyons and Spitalfields. The Clerkenwell mechanic sees with no feeling of national pride the American machine-made watches pressing on his heels in the march of time. Even our trade in the bending of umbrella and stick handles is rapidly crossing the Atlantic, and several of our chemical industries are being absorbed by the Continent. And what about those devices, those Yankee notions, as we call them, in which machinery replaces the old cumbersome and uneconomical hand labour,—the sewing-machine, the type-writer, for clear and rapid correspondence, the electric pen, for superseding lithography, duplex and quadruplex systems of telegraphy, for multiplying the carrying capacity of a telegraph line, and that instrument for dispensing even with messengers, the telephone? Why, not only do these come to us now from America, but it was in that country that they all sprang into existence, with many brothers and sisters like themselves. I shall, no doubt, be answered that it was to that country that they all owed their birth because American labour is so dear, and, consequently, some means must be found to economise it. You might imagine from this there was in America a national evil,—dear labour,—and that machinery had to be devised to overcome its ill effects. But do high wages necessarily mean large selling price of manufactured goods? What foreman in this room, wishing to turn out articles well and cheaply, would prefer employing an ignorant Indian labourer at, say, 2d. a day wages, instead of an English mechanic, with his knowledge of tools, at 6s. a day? So, in the same way, a highly-paid American workman may, with his most ingenious labour-saving machinery, undersell the English in their own market. One of the things, therefore, which England requires, in order to regain her old commercial supremacy, is smaller cost of production of manufactured articles, a condition of things which, I think you see, is not at all incompatible with higher wages. In my British Association lecture to the workmen at Sheffield, this year, I have experimentally shown how an enormous economy can be effected in the consumption of coal, and, consequently, in the cost of generating power, and in the working of the metals, as well as in the expense of warming and lighting your buildings, by the employment of very large steam-engines and of natural sources of power, such as streams and waterfalls, and by conveying, through the agency of electricity, this power to the distant places where it is required to be used. For water-power, if sufficiently far away from a town, is often worth little or nothing, since the cost of conveying the work done on the spot over the hilly country to the markets more than compensates for the economy of using water instead of steam; but the waterfall, if utilised for transmitting power into the towns by electric currents, becomes much more economical than burning coal. Again, as I explained to my audience, work done by distributed power from a very large steam-engine, would be much cheaper than using a number of small steam-engines if only the power could be distributed without the great waste which always accompanies the friction of shafting, leather belts, tooth-wheels, &c. Now, if, by means of what is called a dynamo-electric machine, we convert the work done by the one large steam-engine into electricity on the spot, and convey, by means of wires, this electric current to different points, and there, with dynamo-machines worked backwards, we reconvert it into motive power, then the loss of energy by friction, &c., can with the special form of working I explained, be reduced to something like 30 per cent. At Sheffield it was the economy of utilising the present wasted natural sources of power that exist in our mountain streams that I urged on my large audience; to-night it is the utilisation of even a still more important dormant natural source of power,—man's brain,—that demands our close attention. It must sometimes have puzzled you why a successful professional man, one who has no manual skill, no strength of limb, earns by his work so much money, and, what is higher, so much fame. It must sometimes have struck you as, at the very least, rather hard that while you are toiling from morning to night, day after day, to gain only enough to live on, another, by the mere efforts of his thoughts, amasses a fortune. But you, no doubt, regard it as quite fair that a skilled mechanic should receive higher wages than a navvy. For you say that, although he has eyes and arms like yourself, and is, perhaps, the stronger of the two, still you can use your powers with a skill of which he knows nothing. Now, just as he has muscular strength, which, when cultivated, means wealth to himself and his country, so you have brain power, which only requires education to fit it to do useful work. But you will say, am I not forgetting that you have all been to school, and have received an education at least as good as is given in the Board schools? Consider, however, what is taught in these schools, where masses have to be educated. Is there time to teach reflection, to foster the reasoning power? Is there that training given you which should make you unwilling to follow any special routine method in your trade, unless you are convinced it cannot be improved on? And can you expect it to be otherwise, when the boys and girls leave at twelve or thirteen years old,—when the main object of the teacher, who is paid by results, is to cram the young until they are heavy enough to drop through the examining machine,—when occasionally the teaching is necessarily confined to the three R's solely because the Government inspector finds that other subjects are,—well, a little beyond his limited attainments? Again, what is the feeling boys and girls have at the National schools? If they succeed in their lessons, they look forward to becoming pupil-teachers; but if prizes do not fall to their share, they feel that teaching is not for them, and fall back on a trade; but how very few, if any, ever look to their studies as a means of making them educated workmen, instead of mere copying-machines! The consequence is that, when a lad is first apprenticed, he is merely an errand-boy, or fag, being fit, in fact, for little else. Subsequently, he is posted in one of the departments of the manufactory, his instructor being a man under whom he works; but this man, having his own work to attend to, has not time to teach, and, even were it not so, he could only show the boy the manual operations. When the piece of work on which the apprentice has been engaged is finished, it has to pass the foreman of the department,—generally a man who, through honesty, sobriety, and manipulative skill, has risen from the ranks of the workmen, and whose education has been of a character similar to that of those around him. The foreman's duties, of course, leave him no time,—even if he were competent,—to give instruction, and thus the lad goes on, probably working, quite mechanically, at only one small branch of his trade. In time, he becomes a journeyman; he may become a foreman, to govern others. Thus, the "rule of thumb,"—*i.e.*, each man working as his shopmates do,—proceeds, and thus ignorance of principle has been carried on from one generation to another. And things go on remaining very much as they are, merely because we have never seen them otherwise. The man or woman, then, instead of becoming an agent far above any machine,—in that there should be the possession of the reasoning power, which is a quality of no machine,—frequently finds him or herself, mentally, infinitely inferior to Babbage's calculating engine; bodily, quite unable to work with the accuracy and speed of, say, an automatic lathe for turning gun-stocks; and, from having a knowledge of only one narrow department of one restricted industry, is quite at the mercy of the fluctuation of trade for the means of subsistence. But do not let it, for a moment, be thought that I am regretting the Education Act of 1870, or am, in the least, blaming the necessary course taken by the School Boards, since nobody is more alive than they are themselves to the incompleteness of the present education of the English artisan. That may be seen from this year's report of the Educational Endowments Committee, in which it is recommended that the City parochial charities shall be employed for the establishment of technical schools, to be attended by boys and girls for the two years after leaving the existing schools; that is, during their fifteenth and sixteenth years. It is not necessary on the present occasion to refer to the suggested curriculum of such technical schools, beyond saying that it appears to be complete. It ought to be tolerably clear to every man that it is important for him to have a good knowledge of the fundamental principles that govern the processes employed in his own trade. For example, when it is remembered what great mechanical differences are produced in iron by the admixture of even small quantities of carbon and by varying the temperature of hardening and annealing, the steel manufacturer will see at once the importance of the study of chemistry to him. Many of us believe that steel is far better for our bridges than iron, but the fact that such very slight differences in the chemical composition and the mode of cooling change so marvellously the mechanical strength, without materially altering the weight or the general external appearance of the material, renders any system of testing the quality of the completed girders a difficult problem; and so, while on the one hand we are still chary of using steel for bridge purposes, on the other hand the chief manufacturers and chemists are closely turning their attention to the difficult problem of producing steel in large quantities of identically the same chemical and mechanical quality throughout. But something more than mere special knowledge is of importance to each man, for the object of education is to develop the mental powers; the acquisition of knowledge I regard as of but quite a secondary importance. Let a man but acquire the art of learning one subject properly, and the groundwork of his education is to a great extent completed, since he will naturally afterwards be always seeking for knowledge from books, from teachers, from nature, in all those branches which, at any time, may be of importance to him. It is of much importance that a correct notion of the real aim of education should be impressed on you to-night, when we are here to inaugurate the commencement of that wide scheme of technical education which the City and Guilds of London have, after mature deliberation, generously seen fit now to enter on. In the future we hope to have special classes for a variety of technical subjects, and we shall look to you, guided by your own wants, to choose for us, to a great extent, what those subjects shall be; but, just for the present, we must be contented with only a few branches of technical education. Do not, however, run away with the mistaken notion that, because I commence my first course of lectures on Monday next, in this building, on "Some of the Practical Applications of Electricity and Magnetism," therefore, if you are a watchmaker, or if you are a boiler-fitter, or if you are

a coach-builder, you can have no concern with what will be taught. Do not say, "I shall never put up an electric bell! And, as for electric lights, why, in these hard times, I have hardly money enough to pay for tallow candles!" If I were merely going to explain to you how an electric bell was made, and how it could be fitted up in the cheapest and, commercially, best way; or if, again, in my lectures after Christmas on "The Elementary Principles of Mechanics, as exemplified in our Clocks and Watches," I were merely going to tell you of mere dodgey ways of making cheaper watches, you might well say, if your particular trade were not concerned, "That's no good to me," and stay away. But when I tell you that, from the wide range of technical physical subjects from which the choice had to be made, electricity was selected to start with because it was a subject that had been so prominently before you of late, and the mechanical science of watches has been advertised to follow it because a watch is a machine you nearly all of you possess, and can, therefore, examine for yourselves; and when I assure you that the fundamental truths that will be elucidated by experiments from these branches of inquiry will be of no less importance in the advancement of carpentry, printing, and turning, than for improvements in electro-plating, watchmaking, and the allied trades, you will see that coming to these lectures is a duty which you owe to yourselves and to your country, and you will conclude, I hope, very many of you, that "Since the City is generous enough to offer its money to help my education, I have ambition enough to come and learn." Magneto-electricity, as you no doubt all know, was discovered by Faraday, and is one of the beautiful examples of the importance of studying elementary principles. Faraday was not a student at a university, spending money and time in learning the conventional accomplishments of a gentleman, but he was the son of a blacksmith who had, by hard work, to earn his own living. Faraday knew that motion could produce electricity with the ordinary glass electrical machine, and that the electricity so produced could, in its turn, set up motion, as in the pith-ball telegraph worked by Sir Francis Ronalds. He knew that difference of temperature could produce an electric current, and the electric current could in its turn produce heat, or difference of temperature. Consequently Faraday felt sure that, since an electric current can produce a magnet, a magnet must, in some way, be able to create an electric current. But his attempts were baffled time after time; failure, failure only, was the result; yet buoyed up with hope, still persevering with that dogged earnestness which is the characteristic of an Englishman, he at length arrived at this all-important, discovery,—to produce a current with magnet it is no use placing the magnet this way or that way relatively to the coil, but you must have *motion* of the one relatively to the other. When Faraday first made this discovery in 1831, I have no doubt many people thought it a very pretty scientific experiment, but not likely to be of any practical use. Yet to what a host of practical purposes has it been applied during the last forty years! We now see that the invention of the galvanic battery, such as we are using for producing the electric light in this hall, is beginning to sink in importance before magneto-electric induction; for how do we get those strong currents to produce the electric lights of the present day on the Thames Embankment, Waterloo Bridge, or nearer still, in Aldersgate Station? By magneto-electric induction. How do we get these sparks with this Ruhmkoff's coil, which enables us to imitate lightning on a small scale, and so to devise by experiment lightning-protectors for our telegraph lines? By magneto-electric induction. We might go on multiplying indefinitely examples to prove that a *general* knowledge of elementary principles is of the greatest importance to every man, whatever be his trade. George Stephenson, but a coal-miner, and yet the practical inventor of the present locomotive engine, understood that fully. No Institute for the Advancement of Technical Education was founded for him; no City companies lent him a helping hand; and yet he set himself to study the principles of mechanics when he had only just succeeded, with great difficulty, from his absence of leisure and instruction, in teaching himself to read and write, as he sat by the engine fire. The account of his experiments to discover a form of miner's safety-lamp is a living exemplification of the rule attributed to Bacon, but, in reality, given long before by the painter Leonardo da Vinci:—"Begin with observations, go on with experiments, and, supported by both, try to find a law and a cause." Starting with his own idea that, in order to prevent fire-damp exploding, it was necessary that the gas should pass through the lamp at a certain velocity, Stephenson arrived, after many experiments, at the all-important result, discovered quite independently by Sir Humphry Davy, that wire-gauze, if the meshes are of sufficient fineness, cuts a mass of gas into two portions, one of which can be ignited without the other catching fire or exploding. And, realising so fully as he did the advantages of education, it is not to be wondered at that he strained every nerve to have his son Robert well taught, and even sent him to the Edinburgh University, where, in six months, he is said to have acquired as much knowledge as takes many ordinary students three years to learn. And why to Edinburgh University, and not to some nearer English college? Because, at that time, there was no institution where the means of a man like George Stephenson, only one step removed in position from that of an ordinary miner, could obtain even a decent scientific education. And what has been the result of this cheap and general Scotch education spread over many years? Why, that we now see so many posts at home and abroad held by Scotchmen, just as we find a considerable portion of the more important positions in our manufactories occupied by young Germans, solely on account of the scientific training they have received. What were the feelings Professor Bell had when in England? He wrote to America:—

"If you want to know why inventors are more numerous in America than they are in England, come and live for six months in England. If you wish to know what it is to be brimful of ideas, and yet to be unable to have them executed, come to England. Masters, instead of encouraging invention, do all they can to put a stop to it, by charging the most exorbitant prices for experimental work, avowedly because they do not want such kind of work,—because it gives, they say, more trouble than it is worth."

And much more of the same nature. Now, granted, if you like, that this is much exaggerated; granted, even if you wish, that it arose from national prejudice; still, we must remember that Bell himself was an Englishman, and the inventor of one of the most wonderful instruments of modern times. Also we must not forget that George Stephenson's attempt to survey the route for the Liverpool and Lancashire Railway led to his being frequently stoned by the inhabitants of the property, who have since most largely benefited from his work; and that Sir Francis Ronalds's letter to the secretary of the English Admiralty, in 1816, describing the electric telegraph that Sir Francis has constructed, and successfully worked, led to an answer splendidly calculated to foster invention, viz.:—

"Mr. Barrow presents his compliments to Mr. Ronalds, and acquaints him, with reference to his note of the 3rd instant, that telegraphs of any kind are wholly unnecessary, and that no other than the one now in use" [the semaphore] "will be adopted."

If England is, then, so lamentably deficient in technical education, how is it that English engineers, English workmen, have hitherto been considered first in the world? Because we started earliest in the race; because we had an abundant supply of coal and iron; and, lastly, because we had indomitable energy; but Dr. Lyon Playfair, some years ago, asked this question, and the present depression in trade leads me to ask it again now:—

"Do you sincerely think that the country can continue in a career of prosperity, when she is the only leading State in Europe that is neglecting the higher education of the working classes, and of those men above them whose duty it is to superintend their labour? It is a truth incapable of being gainsaid, that science must be joined to practice in the advancing competition of the world, in order that a nation may retain the strength an energy of manhood; for States, like individuals, fall into decrepitude and decay."

Dr. Lyon Playfair has been answered; answered sooner, and in a more decided manner, than even he could have feared; and that reply is, No! our country has, indeed, not continued in its former state of prosperity. Years ago France, Germany, and, above all, Switzerland, set themselves the same question, but instead of waiting, like ourselves, for time to give the sad response, they foresaw it, and, by fostering technical education, have absorbed into their countries some of the industries of the world. The city and canton of Zurich, having once grasped that their system of national education was defective in modern practical science, vied with each other in providing funds for the complete equipment and support of a technical university. They did not, as Mr. Scott Russell tells us, ask themselves "What is the smallest and least costly scale on which we can begin to make good a few technical deficiencies?" but they asked themselves that other question, "What is there in the science, the philosophy, the learning, the art, and the practical skill of modern times, which can be learned and taught, but for which there is no adequate provision already made for teaching to our students in the universities of our land?" And yet another nation, small and apart from the world, a people, like the Swiss, dwelling in a mountainous country, and like them, too, dearly loving their pine-clad hills—the Japanese—have set us an example that our ambition should lead us to emulate. Much have we heard of Japanese art, much have we seen of Japanese lacquer, Japanese fans; but only a few of us are acquainted with the Japanese modern technical education. Ten years ago a feudal country, tyrannised over by barons, with power of life and death in their hands, distracted by the conflict between the rightful sovereign and their hereditary military usurper, that nation whom we regarded as barbarous, that nation of whose manners we were comparatively ignorant, whose very modes of thought are so different from our own that we can hardly be said to understand them now,—that people had but three years emerged from a state almost of slavery, when up grew, in its very midst, a technical college, with a staff of carefully-chosen English professors, with its laboratories, its class-rooms, museums, libraries, and workshops, costing Japan,—a poor country, be it remembered,—at least 12,000*l.* a year to support, and many thousands to build. And to enter and study at this college neither money, nor position, nor any qualification is necessary, but ability and desire to study; so that working at the lathe, or conning over their books in the class-room, or experimenting in the laboratory, may now be seen, side by side, the young noble and the young artisan. An example to emulate, did I say? The City companies have given us the opportunity; let us show that we appreciate it. They do not propose merely to teach each man his trade or business, for that he can best learn in the workshop or counting-house; nor have they any idea of merely grounding you in elementary arithmetic, since that you can learn at school; they do not start by building handsome edifices, although they have already subscribed many thousands for erecting in London a large central technical college; but what they have done is henceforth to put on one side more than 15,000*l.* a year of their own money to give you from now that education which will enable you to commence doing what George Stephenson, in these words, half a century ago, urged on you:—"Learn for yourselves, think for yourselves, make yourselves masters of principles, persevere, be industrious, and then there will be no fear for you."

The chairman, Mr. F. J. Bramwell, F.R.S., said that before formally asking the audience to thank Professor Ayrton for his able and instructive lecture, he wished to make a few observations on the objects which the City and Guilds of London Institute had in view. The promoters of that Institute had for a long time past earnestly desired to see some improvement in the technical education of English workmen. They had seen the old apprenticeship system dying out as mechanical appliances had been substituted for hand-labour, and they had felt that there was no adequate provision being made in this country to enable a workman to follow intelligently the principles which should guide him in the performance of his work. Hitherto the traditions of the workshop had been handed down from father to son, from one generation to another, and the workman of to-day had grown up knowing little more than the workmen in the same craft a century ago. But, notwithstanding, we in this country got on for many years better than our Continental neighbours, but not because we were in the right course, but because other nations were perhaps pursuing a worse course than we were. It was said, by Englishmen, in going through the Exhibition in Hyde Park in 1851, "What is there excelling that which England shows?" With regard to most things that boast was justified, but with regard to some other things English self-sufficiency received a rude shock in that Exhibition. Nevertheless, we went on trusting

in ourselves. We were the pioneers of railway engineering. Men like George Stephenson, we said, received no education in technical schools, and it was no doubt true that the enormous strides which had been made in engineering in England had been made by men who were compelled to be engineers because "they had got it in them and it was bound to come out of them." It was not the function of technical education to teach a man his trade; it merely sought to instruct him in the principles which underlay it,—to give him, in fact, a better box of tools to work with. A sculptor could not be made by giving a man good tools, nor a painter by giving another man a box of paints, although, of course, the sculptor could not work without tools, nor the painter without colours. Scientific and technical teaching must be conjoined to careful observation and diligent practice. Forty-seven years ago he (the chairman) became an apprentice and wore a paper cap and fustian jacket, and he was quite sure that whatever the amount of scientific teaching which our workmen received, they must not dispense with the paper cap and fustian jacket. The City and Guilds of London Institute desired to do, unostentatiously, a great deal of good in promoting technical education as far as their means would allow. They did not propose to establish model workshops, because they believed that, as a rule, such establishments, whether on the Continent or elsewhere, were mistakes, and were really unnecessary as aids to instruction, except, perhaps, in weaving and one or two other industries. The central institution, when carried into effect, would be a costly undertaking, and would require to be administered with great care and discrimination. The main object of such central institution would be to further educate those persons who had received instruction in the local technical classes, such as were then being inaugurated; to educate and train teachers to take charge of such local classes; and to give technical instruction to foremen, managers, and principals. That was a serious undertaking, and it was, of course, eminently desirable that it should not be brought forward in an immature condition, seeing that it would be a costly affair, and mistakes might involve the loss of a great deal of money. But while those upon whom devolved the development of the scheme were carefully considering and maturing its details, and collecting funds for the endowment of the central institution, they desired to make a beginning by the formation of local classes in different parts of the metropolis. They had no desire to compete,—on the contrary, they shrank from competition,—with those bodies which were already in existence with similar objects in view, and to two of them,—King's College and University College,—the promoters of the Institute had resolved to render assistance in the shape of pecuniary grants towards the cost of machinery they had in operation. Again, they had taken over from the Society of Arts,—that useful nursery-ground of so many good movements,—the Technological Examinations which that body had instituted, and he (Mr. Bramwell) as chairman of the executive committee, had recently had the pleasure of signing one hundred certificates of merit granted to persons who had come forward in those examinations. In conclusion, the chairman asked the audience to thank the lecturer of the evening, and this they did most heartily, Professor Ayrton saying a few words in acknowledgment.

WATER IN EDINBURGH.

At a joint meeting of the Finance and Works Committee of Edinburgh and District Water Trust held on the 8th ult., Sir James Falshaw, it is reported, submitted a statement, so far as completed, showing the Parliamentary estimate and the actual cost of each particular portion of the new Moorfoot Waterworks. The expenditure in some instances was, it seems, slightly within the estimates; but, on the other hand, in respect of the outlay for land required and some other matters, the estimates were considerably exceeded, the increase on land alone being something like 25,000*l*. This item of expenditure, it was pointed out, was one over which the trustees had no control, seeing the sums paid for land were fixed by arbitration. The total excess of outlay over estimated expenditure, so far as arrived at, is fully 50,000*l*.; but that amount, it was explained, includes Parliamentary expenses, purchase of piping, &c., not mentioned in the estimates. Some 90,000*l*., it was represented, would be required immediately in connexion with the works in hand and the construction of the Rosebery reservoir, while 4,000*l*. or 5,000*l*. a year would be needed for the extension of the town and district piping. It was (the *Scotsman* believes) agreed, after some discussion, to recommend the Trust, to give the law agent instructions to proceed with the preparation of a Bill, to be promoted in next session of Parliament, authorising the Trust to borrow an additional sum of 200,000*l*.

THE NAMELESS MONUMENT.

Down beside the old church chancel,
In a curious recess,
Nearly hid behind the pewing,
Lies in sculptured stateliness
A knight's effigy, whose title
No living soul can guess.

Some brave warrior of past ages,
And a famous man, no doubt,
Must he be, above whose relics
This memorial lies carved out.

Yet no motto or inscription,
Graven brass or herald sign,
Indicates his rank and prowess,
Or the kinship of his line.

Of a stern impassive aspect,
Martial mien and stalwart mould,
His marble counterfeit imports
A dauntless man and bold;
A man who, while he lived on earth,
Brook'd not to be controll'd.

In a closely-woven hauberk
Of chain-mail his limbs are cased,
Hangs his pointed shield beside him;
'Neath his head the helm is placed,
Which of yore with ladies' favours
Has in tourneys oft been graced.

At his feet a hound lies *couchant*,
Emblem of fidelity;
And his knee is bent, denoting
That he was, or else would be,
Like his peers, a soldier-pilgrim
Of the Cross,—beyond the sea.*

Slanting like a bar above him
Rests the two-edged sword he holds,
And his richly-broider'd surcoat
Garments him in graceful folds.

Sometimes through the painted windows
By the sun's bright glances shed,
Beamy splendours gild his armour,
O'er his face warm tinges spread;
Seems he more like one reposing
Than an image of the dead.

Norman lord of many a manor,
Here perchance his castle halls
Knew him as the proud oppressor
Of rebellious Saxon thralls;
Perhaps he built this church ordaining
For his sepulchre its walls.

Was he, think you, some Crusader,
Who defied the Paynim host,
When the lion-hearted Richard,—
Still Old England's valiant boast,—
Leagued with France, invaded Syria,
Conquering first the Cyprian coast?

Or might he, outliving Richard,
Have succumb'd with harness on
In less chivalrous emprises
Of the despicable John?

Ah! we know not. With the barons
On the field at Runnemede
He may else have urged the tyrant
Our great charter to concede;

And notwithstanding base aggression
In the following civil strife,
As a sacrifice to freedom
Have resign'd rank, lands, and life.

Who can tell? A generous impulse
Bids us his deserts assume,
And in reverent contemplation
His quench'd memory relume,
Though the shadows of six hundred years
O'erspread his nameless tomb.

JOHN COTTON.

* Knights who had fought as Crusaders, or who were under a vow to do so, were usually represented, in the recumbent monuments of the time, with the legs inclined crosswise, the hand upon the hilt of the sword. When the sword was quite sheathed it was indicative of the pilgrimage having been performed; when grasped and partly drawn, it was to be inferred that an armed pilgrimage was about to be undertaken by the original of the effigy.—J. C.

CANONS OF SANITARY WORK.

Amongst the papers read at the Croydon Sanitary Congress was one by Dr. Alfred Carpenter on "The First Principles of Sanitary Work." We print the concluding portion of it, which should interest many of our readers:—

The basis upon which preventive medicine stands as a science is that of the particulate nature of contagia. It is the first canon law. There are several ways by means of which the natural order schizesporem may make itself felt, viz., by the air, the water, the earth, or the food. The contamination of the air in the neighbourhood of our dwelling-houses both above and below the level of the ground must be counteracted. The contamination is effected in two ways,—1, by the ordinary processes of decay which are always going on in organic nature; and 2, by the aggregation of living creatures. The higher the animal life is in the scale of creation the more injurious is the excreta of such animals, and that of man most of all. The remedy for these evils is ventilation; anything which impedes it is contrary to sanitary law. Motion is the second most important fact, and is the second law of sanitary work. Motion of both air and water is a principal law of sanitary work. Stagnant air in the house-drains of this town produced more or less evil in almost every house in the place until our local senators were convinced of the evil. It was in Croydon that the law for ventilating sewers was first put into operation by a local authority. But the local authority were then in advance of the intelligence of the people, and although the command was issued the work was not generally done until much more proof of its necessity was afforded. Now the ventilation of the sewer and of the house-drain is required by the law of the land, but it is not nearly so general as it should be. Those openings into sewers were at first called stink-pipes, and were sometimes taken away because they gave evidence that the law of motion was not complied with. The foul smell which came out showed that the sewer was a sewer of deposit, that it contained stagnant sewage; and the neighbour, like the ostrich of the desert, who when danger threatens hides its head, takes away the safety-valve and tries to smother up the evidence which the stink-pipe gives out, and sends it into somebody's house, instead of insisting upon the removal of the foul sewage from the sewer. No smell will ever arise from a properly-constructed sewer, and if there be such smell, it is conclusive proof that there is deposit either in that sewer or in some other in close communication with it, or in the soil around it. No stagnation, either of air or sewage, should be possible in any sewer. Assuming that sewers are necessities in a thickly-peopled neighbourhood, they must not be allowed to ventilate into houses; and now a third law comes into operation, viz., that it shall not be possible for air to pass directly from a sewer into any house until it has been diluted by pure air, and has had time to have its albuminoid matters oxidised. There must not be any communication directly between the sewer and the interior of the house. There is no occasion for any departure from this law, and it should never be allowed in practice. There is another danger which arises from sewers if they are not constructed of impervious materials; brick sewers are open to great objection when they pass through pervious soil in close proximity to houses. Unless they are very freely and efficiently ventilated, they contaminate the air of the subsoil of a town until it becomes a perfect hotbed of mischief. This is a frequent cause for the continuance of enthetic disease in districts in which the water-line rises and falls at distinct intervals. The way in which gases travel long distances underground is sometimes shown by the distance which coal-gas sometimes travels when a fracture has taken place in a gas-main. Sewer-gases, which only form in badly-constructed sewers, are just as penetrating. The products of decomposition find their way through the bricks into the soil, and then into the foundation of the houses. There are some houses in this town which are built over sewers, and which must sooner or later be dangerous to the occupants. The builders of such houses ought to be compelled to notify the fact to every incoming tenant. Ventilation should be provided in every case in which a trap has been fixed, otherwise stagnation must arise. This is another fundamental law. The next law is that sewage must

be utilised. It must be conveyed as soon as it is formed away from the neighbourhood of human beings. Disease is found to flourish most luxuriantly in sewage which is about to undergo putrefaction, but in which putrefaction is not actually established. The safety, as far as it is safe, of the old-fashioned cesspool out of doors arises from the fact that putrefaction is rapidly set up; but in the cesspool germs of mischief may find their way into wells and water-courses, and may do much harm. No sanitary authority ought on any pretence to allow a cesspool to exist within its jurisdiction. If there are no sewers, and I contend that they are not necessaries in a thinly-peopled district, excreta should be reserved in some utensil in contact with earth or some other deodoriser able to arrest the changes which otherwise must take place, and before the power of change can re-assert itself the material should be taken away and utilised in the ground. . . . Sewage which has been removed from the town by water-carriage must be applied at once to the land by means of surface-irrigation. This subject has been repeatedly mooted at congresses, and by inquiries made by Royal Commissioners and committees of both Houses of Parliament, and the general conclusion which has always been arrived at by unbiassed witnesses has been similar to that which was agreed to at the first sanitary congress ever held in this kingdom. In October, 1866, the Leamington Sewage Congress, after a long discussion in a large assembly of scientific and practical men, agreed to the following resolution:—"That the system of irrigation, when carried out in a scientific manner, removes the difficulty which now arises from the present noxious plan of polluting the rivers of England." A rider was added, which caused it to be unanimously accepted, viz.:—"But that there are circumstances in which other systems may be applicable." Thirteen years have passed away since that time, and I am still more convinced than ever of the truth of the following conclusions:—1. That sewers are necessities for crowded populations. 2. That having sewers, they are silent highways along which human excreta may be safely and efficiently removed by water-carriage. 3. That sewer-gases and smells from decomposing sewage are not necessities of the system. 4. That, if sewage be judiciously applied to land, the spread of enthetic disease by its means becomes an impossibility. 5. That after a proper application by surface-irrigation, the effluent water may be safely discharged into the nearest water-course. 6. That the application of sewage to land must be conducted on scientific principles, otherwise failure, first financially, and then by producing nuisance, will arise. 7. That a local board is the worst possible body to have the management of a sewage farm. The management requires an intimate acquaintance with several sciences,—with agriculture, with sale and barter, and an immediate personal command of capital; without these powers it cannot become a financial success. The manager of a sewage farm must be an autocrat, and not be liable to those attacks which are certain to be the lot of active members in a popularly-elected local board. The eighth conclusion which I have arrived at is, that a local authority, in providing for the utilisation of sewage by irrigation, must be prepared to pay the difference in value between the price of the land and its ordinary agricultural worth. One penny in the pound on each rate, or at the most 3d. for the year, ought to be amply sufficient for this purpose, as well as for the payment of interest on money sunk in unexhausted improvements. The ninth conclusion that I have come to is, that although sewage should be conveyed to the soil as rapidly as possible, rainfall should go to rivers. It is a wrong thing to conduct rainfall into sewers, as by this means a sewage farm is swamped with unnecessary water. Not that storm water from the streets of London should be sent into the Thames, or the washings of thickly-peopled cities at once into the water-way, but ordinary surface water should be strictly excluded, and when possible, the rain-water from house-roofs should go into the water-courses. This is a good reason for excluding sewers from thinly-peopled districts; ordinary sewers will only drain the subsoil, empty the water-courses, and dry up the smaller sources of our rivers, and produce as much evil in the subsoil as cesspools now do. They are serious blunders, too often perpetrated for the personal benefit of private individuals. The sixth great law of sanitary work is for sewer and water services to be decidedly separated, so that no interchange of either water or gases should be possible. Sewage soon decomposes iron, and if water-pipes are allowed to lie in sewers, and to occupy portions of cesspits on the roadside, or to be in communication at those points at which water is delivered into a house and slops and sewage removed, there can be no real safety for the people. I am sometimes astounded when I hear men who put themselves forward as sanitary authorities utterly ignore this fundamental law. The seventh law is that the individual house is the unit of sanitary work, that it is in each house and it is with each individual that the first action must be taken to diminish the power of the germs of disease to grow and produce their kind. But all these canon laws have their foundation upon the particulate nature of contagia, and it is by bearing this one fact in mind that sanitary work can produce sufficient fruit to be successful.

"COMPETITIONS" AND THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE following letter has been addressed to members of the Institute:—

"As the season is approaching when our Institute will again meet for its sessional deliberations, I intend at an opportune moment (if I can rely upon the support of the 'Fellows' generally) to call the attention of the Council to the subject of 'Competitions,' with a view to some practical steps being taken to minimise the evils arising from the competition system as at present practised.

Believing that the Institute is the only body that can with any hope of success deal with this subject, I venture to hope that the time may have arrived when the 'Fellows' (about 350 in number), as the elders of the Institute, will by some dignified act take the initiative, and determine from some given date to refrain from engaging in any open competition (or in any limited competition where a substantial honorarium is not offered to each competitor), and will make it incumbent on every 'Fellow' hereafter elected to sign a declaration that he will not engage in any open competition.

It is not too much to hope that such a course of action would ultimately lead to the discontinuance altogether of the 'competition system,' as committees would hesitate before advertising for designs if they felt sure that not a single 'Fellow' of the Institute would respond to such an appeal, and it is not unlikely that a large proportion of the Associates and the Members of other Architectural Societies would cheerfully follow the example set by the 'Fellows.'

One of the arguments (and it is a powerful one) at present used by those who engage in competitions, to justify their action, is that the 'Fellows' of the Institute have not hitherto discouraged the system, but rather, on the contrary, some of the most distinguished men are still found ready to engage in any competition of importance.

Open competition must be a serious loss to the profession as a body, as it may be taken for granted that few buildings of any importance are now erected without some architect being professionally employed, and consequently the whole expense of competition drawings and the time expended upon them is so much money absolutely thrown away, less the premiums (which are generally small) that may be paid to the successful competitors; and while it is difficult to estimate with any degree of accuracy the cost of competition drawings, it can be no exaggeration to say that very serious sums must have been lost in the several large competitions that have recently engaged the attention of the profession.

Small competitions are even more prejudicial to the well-being of the profession, because the number of competitors is often very numerous and the premiums small, and not unfrequently the payment of the premiums is the end of the matter. I may, as an instance of this, mention the Addiscombe-road Church competition, when seventy-five competitors responded to the invitation, and the work was never carried out, the premium of fifty guineas being the only remuneration paid.

Assuming the modest sum of 10*l.* as the average cost of each set of designs (and it would probably be three times that amount in many cases), the loss to the profession on this competition alone amounted to 700*l.*, and such instances are not uncommon, especially in church competitions. It is clear, therefore, that the amount annually lost by the profession through the competition system must be very large.

The total abolition of competitions would, I believe, do at least three things for the profession:—

1. Increase its dignity.

2. Materially improve the financial resources of its members.

3. Materially benefit the position and increase the remuneration paid to the architectural assistants in our offices.

I may at some future time place before you some important statistics relating to competitions; and in the meantime I shall be greatly obliged if you will favour me with any suggestions that may occur to you on the subject to which I have directed your notice, and specially inform me whether, in competitions where you have been successful in gaining the first premium, the works have been carried into execution with results wholly satisfactory to you, or whether the reverse has been the case.

I should also be glad to know that you sympathise with and would support the movement of the 'Fellows' in the action I have indicated, that I may regulate my further action accordingly.

THOMAS PORTER,
Fellow of the Royal Institute of British Architects."

P.S.—It may be worthy of consideration whether the Institute might not with propriety recognise a commission of 6 per cent. instead of 5 per cent. as a proper professional charge for "Fellows" to make in future on works carried out by them.

FIREPROOF FLOORS.

SIR,—I know the great interest you take in all that relates to concrete, and I am obliged to you for the notice you have so kindly given of my exhibits at the Sanitary Congress at Croydon. I should like to make the object of the new description of floor there shown clear to your numerous readers, and tell them the problem I am trying to solve.

It is proposed to build a house in London, with rooms averaging 24 ft. by 18 ft., to be let in flats, for separate occupation. The floors are wanted to be fireproof, waterproof, no wood to be used in their construction, and not to cost more than ordinary wooden joists, with floors and lath and plaster ceilings. There are plenty of schemes already in use for fulfilling all the conditions named except the last, and I know of no system by which incombustible floors can be made as cheaply as ordinary floors.

Your readers do not require to be told that all the systems at present in use are founded on the principle that wet concrete thrown on a core sets hard, and on removal of the core retains its position and forms a single slab the size of the room, which slab is sometimes strengthened by the insertion of iron; and this I will call the wet system.

Now, I propose to do away with the core and the mess and slop, with the fear of frost, the delay whilst setting, the waste of materials this system necessitates, and to bring a floor all ready to lay down on the job; and this I will call my patent dry system.

The room is 24 ft. long, and I place I-iron girders of the ordinary kind across it, which divide it into three bays, each 18 ft. by 8 ft.; then joists, 6 in. by 4 in., and 8 ft. long in the clear, are filled in over the whole floor, 18 in. apart, centre to centre. The tops of the joists are left flush with the top edges of the girders, and packed up from the bottom flange, so as not to let the girder project too far into the room below. The other ends of the joist are built into the wall. The joists are made of a mixture of clinker, breeze, and cement, ground together in a mill, and each joist has three pieces of iron, 2 in. wide and ¼ in. thick, inserted in it vertically and equi-distant. The scantling of this iron, I know, seems very small, and to those who have not seen the wonderful addition to the strength of very thin pieces of iron when embedded in concrete it must sound absurd to talk of hoop-iron on edge,—for that is all it is,—carrying heavy weights; but concrete builders know it will do so, and you will quite see I cannot afford to throw anything away, as more than enough is waste, and before my coat is cut out my cloth will be all gone.

Well, then, these joists are cast in moulds fair on three sides, rough on the top side, and moulded on the two lower edges. After they have been made about a month, they may be safely sent by road or rail to any part of the kingdom.

I have made scantlings in this way for several of our leading architects, and sent them without injury to their various works for lintels, sills, window-mullions, and several other purposes; and the joists made in this way I have at Croydon were carted from Stratford, about twelve miles, without packing, and are not injured.

The joists being put in their position, 18 in. centre to centre, the 3 ft. by 2 ft. slabs are laid on them. Each slab covers two joists, and the joints are broken by beginning each alternate row with a half-slab. The slabs are 1½ in. thick, of the same composition as the joists, with two pieces of iron, ¼ in. in diameter, crossing them diagonally. They are made in iron moulds, gauged to a thickness, one side finished red for the upper surface, and the other white for the ceiling, and are bedded on the joists in cement.

Before the slabs which come over the I-girders are bedded down, a wooden box is suspended under the girder about the size of a beam, and this is filled in with concrete in the ordinary way. The beam might be brought on the ground embedded in concrete, and the one I have at Croydon was so brought, but the cost of lifting is much more than the trouble of filling in. If the work is done in winter, the filling-in of the beam might be deferred until the spring, as the floor is complete without it.

My exhibit at Croydon consists of a bay, 10 ft. long by 6 ft. wide, with a beam dividing it at the centre into two bays, each 8 ft. by 6 ft.; each bay has five 6 in. by 4 in. joists, and 8 1½ in. floor slabs, made as described.

The cost of the slabs is 6d. per foot super., and the cost of the joists 1s. per foot run. This would be about 9d. per foot super. if the joists were 2 ft. apart, which would be close enough for ordinary purposes; but the cost of delivery, fixing, and the two beams, would have to be added, which would bring the cost of the floor to about 1s. 3d. per foot super.

An ordinary floor, with joists and lath-and-plaster ceiling, would cost as much, or a little more, so that we have here a fireproof floor at the same cost as an ordinary combustible one.

Some might object to the joists showing. To meet this objection, I have some 1 in. slabs with a screw hole cast in each corner to screw into the concrete joists, and finished with lime and sand. I have done ceilings this way, and this would add about 6d. per foot superficial to the cost, but the alternate joist and long ceiling-panel look very well, and I think most people would now prefer it to the flat ceiling.

The red floor might either be left as it is, or covered with rugs, kamptalicon, or carpet. I have them in use each way, and they all look well. A carpet will last longer on this floor than on a wooden floor, and it is not damp or cold as one might suppose.

A suggestion has been made by a London Insurance office that these floors would do capitally for granaries, and I have offered to load it with bags of corn at the close of the present exhibition, which will be November the 8th, to a breaking weight. As there are two bays, I propose loading the other with gravel, and then, by actual experiment, I shall ascertain the weight they will safely carry; of course, by increasing the size of the iron core, the strength might be increased to any amount, but the best plan will be, to save needless cost, to determine the weight the floor has to carry, and allow a margin for contingencies. Thus a floor whose breaking weight is 10 cwt. to the superficial foot, might be loaded safely with 2½ cwt. to the foot, and so on.

This communication has been extended much beyond the length I intended when I commenced, but I want to make the matter clear to your practical readers, and I shall be glad to hear their opinions on the matter, and any questions fairly put I will answer with great pleasure.

W. H. Lascelles.

ENGLISH ENCAMPMENTS.

Sir,—These are yearly decreasing in extent; some of them, however, are complete. The following I describe from personal inspection.

1. In Cornwall, near St. Columb, Andinas Castle, two miles south-west of St. Columb, on a high hill; and in Dorsetshire, the Dorchester amphitheatre, an extensive area, where the execution of a woman for the murder of her husband, early in the eighteenth century, occurred in the presence of a large number of spectators. In this county those camps which I have seen are ancient. No. 1. Poundbury Camp, half a mile west of Dorchester, an irregular parallelogram, 378 yards long and 147 yards broad. According to Camden, it is a Danish relic, for the Danes besieged Dorchester under King Sweyn. As it resembles that at Amesbury, Dr. Stukeley deemed it to be the work of Vespasian.

2. Maiden Castle Camp, one mile south-west of Dorchester, an irregular ellipsis, surrounded by treble ditches and ramparts. The extent of the works from east and west is 1,194 yards, the area in this direction 760 yards, from north to south 544 yards in extent and 275 in width. The vicinal way from Dorchester to Weymouth passes near the east side, and a way connects the west entrance with the Via Iceniana, which enters this county near Woodgate, and may be traced to Badbury, being crossed by Grimes's ditch, north-east, near Woodgate's Inn.

3. Eggerdon Camp, nearly oval; in compass 47½ acres, on Eggerdon Hill, whence there is a Roman road to Dorchester.

4. Badbury Rings, near Wimborne, a Saxon work, according to Camden and Leland. It is circular in form, with treble ramparts and ditches, the circumference of the outer rampart being 1,738 yards. These camps are engraved in Hutchins's "Dorsetshire."

In Cornwall there are other notable camps and earthworks which are described and engraved in Borlase's "Antiquities," Lyson's "Mag. Brit.," vol. iii., and elsewhere. These relics include the little Dinas, in St. Anthony in Meneage, about 500 yards by 200; the Golden Camp in Probus; Carvoisa, one mile west of Grampound; Yerdby in Stratton, Blacketon in Morval, Castle Kynock, near Bodmin; Kelly Rounds, in St. Mabyn; and Warbston Burrows, with two entrances, and a tumulus within the area, eight miles from Launceston. Hoare's "Modern Wiltshire," vol. ii., contains engravings, p. 88, of Battlesbury and Scratchbury Hill camps, near Warminster. At p. 604, vol. vi., there is a plan of Old Sarum 1,400 yards in the circumference of its oval area, with eastern entrance. The ditch round the central castle is 310 yards in circumference. At p. 605, there is an engraving of Old Sarum, seen from a distance eastward. These views are those in Hoare's "Antient Wiltshire."

Near Banbury, I have inspected several camps described in Beesley's "History of Banbury," A.D. 1841. These include:—1, Madmarston camp, near an ancient road, eastward, and the site of a town; 2, Castle Hill and Gredenton Hill, British camps near Brailes; 3, Arberry Hill and Rainsborough, British camps east of Banbury; 4, Ilberry camp; 5, Nadbury camp, on Edghill; 6, Tadmarton British camp, between Banbury and Hooknorton.

Crouch Hill, near Banbury, has a small circular entrenchment around its summit, which is artificial. The construction of British fortresses on plans combining facile communication with security, is a reason for believing that the ancient Britons were not mere barbarians. This part of Oxon comprised the north-east district of the territory of the Dobuni; and it is notable for the stone relics of Rollright stones, and the ancient mansions of Compton Wynyate, Broughton Castle, and Wroxton Abbey, &c. In Hampshire the camps on Old Winchester Hill, near Petersfield, and that near Winchester, on St. Catharine Hill, should be visited. The relics of the Bramdean pavement are preserved in the Winchester Museum. Danebury, near Nether-Wallop; Norsbury camp, near Wonston; and Bury Hill camp, near Andover, appear also in the Ordnance maps of Hants as extant.

In Morton's "Northamptonshire," folio, 1714, which contains a folding map showing the roads then extant, these camps are described, viz., at Mill Colton, near Barnewell; at Chester, Clifford Hill; at Hunsborough, near Daventry; at Guilsborough, Arbury, and Castle Dikes. In Ormerod's "Cheshire," vol. ii., Kelsborough and Edisbury camps are engraved. This latter camp was constructed by Ethelfleda A.D. 915, when Chester was enlarged by Ethelred. It contains 11 a. 3 r. 10 p. stat. measure; and is 250 yards broad and 400 long. The ditch is 10 yards wide, and the ramparts are 14 ft. high.

Thornbury British Camp is described in Duncomb's "Herefordshire," vol. ii., pp. 226-7, being nearly round, and containing 20 to 30 acres, with two entrances, south-west and north-east. At p. 173, the Roman camp of Sutton is described,—30 acres, single-ditched, with opposite entrances, north and south. It is four miles north of Hereford. The Herefordshire Beacon, which I reached easily from Malvern, is engraved in King's "Munimenta Antiqua," vol. i., with a plan; also Old Sarum and Badbury rings are engraved in it.

The "Antiquarian Repertory," 4to. (1809), vol. ii., p. 450, contains a plan of camps and intrenchments on Cockfield Fell,—1777,—in Durham, an area of 2a. 2r. 34p., surrounded by a ditch. Brewer, in the introduction to "Beauties of England and Wales," 8vo. (1818), describes various camps, including an Anglo-Saxon camp at Eaton, in Bedfordshire (p. 251), and he points out the differences between the camps of the Romans, Anglo-Saxons, and Danes.

The oval enclosure of Yevering Bell is engraved in Hutchins's "Northumberland" (H. N.), vol. i., p. 246. It should be ascended from the south-east, and not from the north, as I climbed it. The oval is 1,000 paces in circuit; the entrance on the south side. The remains of a wall surround the oval, built of flat, large stones, and without mortar,—four layers in depth probably,—and the east end of the area rises some few feet from the level of the plain. At a point almost due east a broadway appears, about three paces wide and thirty paces long in a straight direction, as if formed by an even pavement, extending thirty yards in ascent towards the crown of the hill. It is surrounded by the remains of another wall, forming a circle 180 paces in circuit, with a ditch within. Near its centre is a cairn of stones hollow in the centre, six paces in diameter (see H. N., p. 247). On the northern side of the mountain, I perceived the remains of trees, "a circumstance not to be found on any of the hills within view from the summit of Yavering Hill" (H. N., p. 248). This author attributed the work to the Saxons for fire worship; but Mr. E. Mackenzie ("View of Northumberland," vol. i., p. 378) deems it to have been a Druidical temple. It repays the pedestrian the labour of ascending to the summit.

I reached Yevering from Yetholm, proceeding to Wooler. On the 24th of August, 1845, I ascended Cheviot Mountain from this town by Fleehope, under Yevering. On the summit of Cheviot, I found a lake which is stated to be frozen over, even on Midsummer day, so as to bear sliders. There appeared to be the remains of a camp here also. In the "Tour of a Gentleman," &c., 1720, attributed to Daniel Defoe, this "Cheviot mountain lone" is described as meriting a visit.

Crossing the country from Belford, I found a camp on a hill near Wooler, at Ross Castle. Below is Chillingham Castle, notable for the toad discovered in a wall, and for the wild cattle in the park. In Thoroton's "History of Nottinghamshire," vol. ii., 4to., 1797 (pp. 175-61), Roman camps are described, which are mentioned in the "London Archæologia," vol. ix., p. 198, by Mr. Hayman Rooke.

In Allen's "Surrey and Sussex," 8vo., vol. ii., A.D. 1830, Cæsar's camp on St. George's Hill, Weybridge, is described. It communicated with a larger camp below at Oatlands. In vol. i., Cæsar's camp at Wimbledon,—which I described in the *Builder*, vol. xxx., No. 1529,—is mentioned as a circular encampment, with a double ditch, including an area of seven acres, with a diameter of 220 paces. In Dr. Stukeley's "Iter Curiosum" (1724), the Roman amphitheatre at Dorchester is described (Iter 6). This volume contains engravings of Oldbury Castle camp, in Wiltshire, Clarendon camp, near Salisbury, Martin's Hill camp in Somersetshire, and a geometrical ground-plot of the Dorchester amphitheatre, with four views; also views of Old Sarum, and one of Hedington camp, near the Wandsdyke; Aldchester camp, near Bicester, two views; Burrow Hill camp, near Leicester; Bere Regis camp; Cæsar's camp, upon Barham Down, and at Shepperton, in Surrey. On Wolsenbury Hill, near Brighton, and near Churchdown in the vicinity of Gloucester, I have inspected encampments. Mr. Pennant refers to one in Bulstrode Park as extant in his time. See "Annual Register," vol. xxv., p. 132.

C. C.

TRAMWAYS.

At a meeting of the Society of Engineers, held on Monday evening, November 3rd, in the Society's Hall, Victoria-street, Westminster Mr. R. P. Spice, president, in the chair, a paper was read by Mr. Wilkinson Jones on "Modern Tramway Construction." In introducing the subject, the author explained that the object of his paper was more to describe the various systems now in use than to suggest any modifications or improvements. He then proceeded to state that the first modern tramway was laid in New York, as far back as 1832, with a rail somewhat similar in section to that now in use, although considerably heavier, its weight having been as much as 98 lb. per yard. The introduction of the tramway into England, by George Francis Train, in 1860, was then referred to, and the development of the tramway system and the merits of the various rails employed from time to time briefly considered. The author considered that the failure of the Train system gave a check to the progress of tramways in this country, as it was not until 1868, when the Liverpool Tramways Act was passed, that tramways began to make much headway. He then proceeded to describe the present mode of constructing tramways with rails and wooden sleepers, and referred to the method designed by Mr. Robinson Souttar, which appeared to have much to recommend it, and especially alluded to the Liverpool tramways laid on Deacon's system. The various systems of metal ways were then described, and their respective merits pointed out: among these were mentioned Livesey's and Cockburn Muir's systems as laid in South America; Ransome and Rapier's and other cast-iron harbour tramways; Kincaid's system of rails with intermittent bearings; Barker's system of continuous sleeper as laid in Manchester; and Aldred & Spilman's system of reversible rail with cast-iron chairs. Some results of tests made with various rail sections were given, and the author concluded his paper

by a few remarks upon the nature of bearings, foundations, and fastenings, and pointing out the essentials of an ideal modern tramway. The subject was illustrated by plans.

FINE ART EXHIBITION, ALBERT HALL.

The Fine Art Exhibition at the Royal Albert Hall has been closed. Nearly 24,000 persons have paid for admission to the gallery, not to speak of the thousands who visited the collection on the occasion of concerts. Pictures to the amount of nearly 1,000*l.* were sold by exhibitors. We are glad to hear that the experiment will be repeated, and that steps will be taken immediately to obtain another collection. Artists should feel bound to aid the Council in this matter, and to maintain one gallery in London unconnected with any body of artists, and open to works of merit from any quarter. It might be desirable to invite the Council to devote a portion of the gallery to architectural drawings, there being now no means for the exhibition of such in London beyond the very limited space afforded by the Royal Academy.

THE CITY ARCHITECT'S OFFICE.

A report of the General Purposes Committee, authorised to be printed on October 2nd, states that the Court of Common Council, on November 28th, 1878, on the consideration of a report of the committee on the reference of June 20th, 1878, "to consider and report recommendations as to the matters comprised in the reference of June 29th, 1876, to consider the whole subject of artificers' prices and the employment of City tradesmen, and with sundry recommendations in relation thereto; also recommending the appointment of a surveyor of works at a salary of 300*l.* per annum," whilst agreeing with the general principle of the said report, expressed the opinion that, looking at the important questions raised therein, it was desirable to review the whole arrangements of the Architect's office, and instructed the committee, in conjunction with a representative to be appointed by each of the several committees of this Court, to carry out such review accordingly. The investigation of the question was referred to a special sub-committee, who report: "We are of opinion that the arrangements and staff of the architect's office should be generally approved as being satisfactory, except that an additional appointment should be made therein, to which we would more particularly allude hereafter. We are of opinion that the office of Superintendent of City Labourers, as at present constituted, should be abolished, and that in lieu thereof the Architect should be directed to appoint a foreman or foremen to superintend the execution of the various works, such foreman or foremen to be responsible to him, and under his control and appointment. We likewise recommend that several bills of artificers, to be from time to time submitted to the various committees for examination, should be certified by the Architect, who shall be responsible for the same. To enable this recommendation to be carried into effect, it would be necessary to make suitable provision for the examination of the details of the various bills, as to time and materials, by a competent person under the Architect's control, instead of, as hitherto, by the superintendent of City labourers, whose certificate has been deemed sufficient examination in these respects. With this view we recommend that a competent pricing or measuring clerk be appointed on a similar footing to the other clerks in the Architect's office, and under the same control, at a salary of not exceeding 300*l.* per annum, to examine as to time occupied and materials used on, or supplied for, the several works, and to check the several vouchers for the same. In submitting this recommendation your sub-committee desire to express their opinion that it will, if adopted, render unnecessary the appointment of a separate officer as surveyor of works, independent of the Architect." The committee also submit for adoption suggested arrangements for the execution of the ordinary artificers' works required for the corporation, and for ensuring their more efficient supervision.

The committee add:—"The several recommendations of our sub-committee have received from us due deliberation, and we now recommend them for adoption by the Court, except as to the mode of appointment of the proposed pricing or measuring clerk, who should, in our opinion, be appointed by this court, his duties, however, being performed under the control and direction of the Architect."

An appendix to the report contains a schedule of the duties of the "Architect and Surveyor," as agreed to by Common Council, February 9th, 1864; an extract from a report of the Officers and Clerks' Committee presented April 6th, 1876, varying the terms of the appointment, and statements from the City Architect as to his own duties and those of his staff.

NEW FOUNTAINS.

London.—The Broad-street Ward drinking-fountain was formally opened to the public on the 1st inst. We gave a view and description of the fountain (which it was at first proposed to erect near the site of the old pump in Bartholomew-lane) in our volume for last year, p. 353. It occupies a prominent site in Exchange-avenue, granted by the City Commissioners of Sewers, and has cost 850*l.*, towards which Mr. Alderman Ellis and the Drapers and Merchant Taylors' Companies have largely contributed. The base of the fountain is of polished Cornish granite, by Messrs. Freeman, of Penryn; it has four basins and four jets, which will be constantly running; and as it appeared by the report of the Drinking Fountains Association that more people drank at the fountain on the opposite front of the Exchange than at any other, there can be no doubt of the great public boon which has been granted by the benevolent action of the alderman and his supporters. Above the granite base is a bronze canopy by Messrs. Hart, Son, & Peard, designed to protect from the dirt and rain the sculptured group in white marble, entitled "Charity," from the chisel of M. Dalou. The architect is Mr. J. S. Edmeston. It should be added that the Drinking Fountains Association, at their own cost, erected the granite work, and supplied the plumbing, drainage, &c.

Leicester.—We briefly mentioned last week, in concluding our description of the new Leicester municipal buildings, that a fountain, the gift of Mr. Hart, the high bailiff, had been erected in the open space in front of the buildings, from a design by the architect, Mr. F. J. Hames. Some particulars of it may be of interest. The fountain has a basin 30 ft. in diameter, and 2 ft. 6 in. deep, formed of massive blocks of Shap granite, 14 ft. in length, and lined with white glazed bricks. A light iron railing runs round the basin, supported by eight polished Ross of Mull granite pilasters. The superstructure is of cast iron, bronzed, and stands on a rustic Ross of Mull granite base, 3 ft. thick, the total height being 23 ft. 6 in. It is in eighteen pieces, and weighs nine tons. Four Assyrian winged lions are represented as crouching at the base, and supporting fluted pillars and capitals, at the summit of which is the central basin, 9 ft. in diameter. Above this a centre-piece supports the smaller basin, which is 5 ft. in diameter, and in the centre of which a cluster of bulrushes is fixed. The exact cost of the fountain is unknown except to the donor, but it is estimated at 2,000*l.*, including the cost of laying out the land. There are three different systems of playing the fountain, which can be worked simultaneously or separately as desired. The water can be thrown out of the lions' mouths, out of the jugs in the central basin, or from five jets in the upper basin, which overflows into the larger one beneath. When all three are in operation it is very elegant, no less than between 5,000 and 6,000 gallons of water per hour are discharged.

THE MONUMENTS IN ST. PAUL'S.

Sir,—The other day I casually strolled into St. Paul's. Gazing on the monuments of the mighty dead, I was struck with amazement at the curious appearance of the marbles. What could it be? Inspecting more closely, and applying the sense of touch as confirmatory evidence, I discovered it was due to a layer of dust, almost sufficient, if deposited on the macadam of a West-end square, to deaden the roll of any amount of heavy traffic, and satisfy the craving for quiet of any noble person without the necessity for the laying down of straw or tan. Will any one adopt this suggestion? or direct the attention of the authorities of St. Paul's to what is a small matter in itself, but which, if neglected, may suggest a want of care to keep clean "the House of Prayer and the things contained therein."

R. E. Bray.

THE NEW BUILDING ACT AND BYE-LAWS FOR THE METROPOLIS.

Sir,—We note in your issue for the 25th ult. (p. 1179) that the bye-laws of the Metropolitan Board of Works under the New Building Act have received the sanction of the Home Secretary. It would be of interest to ourselves and your other readers if you would inform us when the Act and the bye-laws come into force.

A. & C. H.

*** The Act (41 and 42 Vict., ch. 32,—short title, "Metropolis Management and Building Acts Amendment Act, 1878") came into operation directly it was passed. (Section 6, Part I., commences with the words, "*From and after the passing of this Act*, no house or building," &c.). Section 15, Part II., enacts that "The Metropolitan Building Act, 1855, and the Acts amending the same, and this part of this Act, shall be construed together as one Act." Section 16 of this part of the Act gives the Metropolitan Board of Works power to make bye-laws with respect to sites, foundations, materials, and the duties and fees of District Surveyors, and provides that, "Any bye-law made in pursuance of this section, and any alteration, variation, and amendment made therein, and any repeal of a bye-law shall not be of any validity *until it has been confirmed* by one of her Majesty's principal secretaries of state," and before any such new bye-law or alteration in a bye-law can be confirmed, the Board are required by the Act to give two months' notice of their intention to apply for such confirmation. The bye-laws, as published in the *Builder* a fortnight ago, came into force immediately they had been confirmed, but (*vide* Section 17 of the Act) only apply to "any house, building, or other erection *begun to be constructed after the passing of this Act.*"

THE CORBEL TABLE AT ST. ALBAN'S.

Sir,—There is an old saying that one should believe nothing of what he hears, and not one half of what he sees. Mr. White, F.S.A., has made the discovery that a *Norman cornice* has been destroyed on the south side of the nave of the Abbey. This assertion is a sample of much that has been written during the past twelve months of our doings and misdoings.

The "Norman cornice" was built on a wall raised 5 ft. 6 in. in the thirteenth century, which was afterwards added to, and in itself was composed of some pieces of Roman tile, inserted for repairs, a course of bricks 9 in. by 4½ in. by 2½ in., manufactured within the last fifty years, and the remainder common roofing tiles, and plastered.

This discovery may be ranked with the celebrated "Bill Stumps, his mark."

John Chapple.

HOW DO YOU SPELL IT?

Sir,—A dispute has arisen in my office as to the word "Clairoolle," which is spelt in "Laxton's," 1878, on pages 140 and 306, in two different ways; and again, in "Atchley's," different still. I will, therefore, thank you to show us the correct way of spelling it.

Jas. Lawrence.

*** We should spell it "Clear-cole"; and it so appears in Gwilt's "Encyclopædia." The word is not to be found in ordinary dictionaries; and if the process were allowed to fall out of use, except in specially "greasy" cases, we should express no regret.

MOSS AND BRICKWORK.

Sir,—Will any correspondent inform us what will effectually remove moss in brickwork prior to painting?

M. B. & Co.

BUILDING ACT CASES.

Sir,—In your issue of the 26th ult.,—"Cases under the Building Act,"—the name of Rushmore-road should be substituted for Blurton-road in the first paragraph; the premises in question being situate at the corner of Pratt-road and Rushmore-road.

J. Lovegrove.

The Duke and Duchess of Connaught at Brighton.—The entire illuminations and decorations on the occasion of the royal visit were entrusted to the firm of J. Defries & Son, and successfully carried out by that firm.

A SCHEME OF PROVINCIAL SAFE DEPOSIT INSTITUTIONS.

SIR, — Provincial Safe Deposit Institutions stand in exactly the same relation to the large provincial towns of the United Kingdom as the National Safe Deposit Company stands to the great metropolis. The scheme "that Government (and why not provincial corporations?) should erect large buildings for the custody and safe deposit of wills of living persons, and of private securities and valuables of private individuals," was printed and published for the first time in this country by the writer a few years prior to the very existence even of the above institution. The building of the above company is both fire-proof and burglar-proof. Here individuals are relieved from all harassing anxiety occasioned by the personal custody of their property and valuables, or their storage in repositories which are rarely fireproof or secure against the burglar. A vast amount of property, amounting to hundreds of millions, "payable to bearer" cannot be insured against fire; cannot, if stolen, be recovered from a *bonâ fide* holder, and cannot, if lost, be replaced. The miscellaneous deposits in these buildings comprise, besides jewels and plate, bills of lading, dock and other warrants, deeds, mortgages, policies of insurance, contracts, powers of attorney, deeds of trust, marriage settlements, certificates of birth and of death, leases, valuables letters, manuscripts, &c. Bankers decline all responsibility for the safe-keeping of valuable deposits, while a solicitor has a lien upon all securities deposited by his client. Few so-called fireproof safes are a complete protection against a great fire, or from the resolute attacks of a burglar. The company acts as trustee, and the head of a family, by deed during his lifetime, may transfer the whole or a portion of his property to the company to hold in trust for the benefit of his wife or children. The company being a corporation, never dies: so executes the trust, however long the time required. In the provinces such institutions would effect an annual saving of hundreds of thousands and even of millions of pounds, to say nothing of the enormous mass of misery and poverty prevented thereby.

AUGUSTUS J. HARVEY.

GAS BURNING.

CAN any of your readers inform me in particular, and all in general, whether there exist anything approaching the matter hereunder mentioned? The subject has occupied my thoughts lately. Many an anxious eye has cast sorrowful looks at ceilings immediately over gaslights, with the thought, accompanied with a sigh, of how soon the ceiling will become black. Glass bells, inverted saucers, &c., have only the effect of distributing the smoke. So my query amounts to this: has anything been invented to take the place of glass that will absorb the smoke, sulphur, condensed water, or whatever it is that settles upon the ceiling? It has occurred to me that tufa, pumice-stone, asbestos, or some other like material, might be prepared so as to absorb,—it would not without preparation absorb,—the deleterious products of gas; and which periodically might be cleansed either by washing or by burning in a bright fire, even a kitchen range. Should there not be already in existence such a benefit to be had, would it not be worth the while of some of your scientific readers or gas engineers to turn their thoughts and energies in that direction? The realisation of it would be certain to turn their copper coin into gold, and themselves into public benefactors. Such a material as I name would not be nearly so heavy as glass, and be less liable to break. I ask you to kindly place this idea before those who have greater opportunities to experimentalise than your humble correspondent.

Y.

ROARING WATER-PIPES.

SIR, — I would suggest as a cure that, if convenient, the supply-pipe be bent at the delivery end, or a curved piece be fastened on; this forms an air-chamber. I think if a piece of lead pipe leading towards the bottom of the cistern be fastened to the nose of the valve, as suggested in your last, there is danger of almost emptying the cistern when the water goes off. I have tried the same thing myself for the same noise, and I found it to act as mentioned.

F. MAYNARD, Plumber.

GRANITE IN DUBLIN.

SIR,—"Irish Notes," in the *Builder* for October 25th, contains a statement which if allowed to pass unquestioned is calculated to do us a great deal of harm as quarry-owners, workers, and exporters of Irish granite.

You say Irish granite was proposed for the pedestal of the O'Connell statue in Dublin, but that the Four Courts showed how quickly that material disintegrated, and that the granite of two other monuments had gone the same way. Now, sir, if you or any visitor to Dublin will look into the cemeteries, you will see there a great quantity of surface rock which is softer than many sandstones, and is really a rotten granite found in the vicinity of Dublin, and is used because it is so easily worked, no regard apparently being paid to any other quality; but this rubbish is only used locally, and it is too much to convey that, because it exists, all Irish granite is similar. If I mistake not, the great beds of kaolin found in Cornwall are decomposed granite, or its constituent felspar, and yet Cornish granite is being employed to build the Eddystone Lighthouse, and I appeal to the experienced designer of that work,—Mr. James Douglass, of the Trinity House,—whether he was not prepared to use our Bessbrook granite for the Eddystone had our tender been low enough.

THOS. M. H. FLYNN, Manager,
Bessbrook Granite Company.

MASTERS AND MEN.

Proposed Federation of Trade Unions.—The Parliamentary Committee of the Trade-Union Congress recently held in Edinburgh have issued a code of rules for the federation of trade unions. The circular proposes that the name shall be the "Federation of Organised Trade Societies." The object is to maintain the nine-hours system as a recognised day's work. The annual contribution to be 2*s.* per member. Should a sufficient number of unions agree to the proposal to constitute a federation of 100,000 members, the Parliamentary Committee will convene a conference, to elect officers and decide upon definite rules. The replies to the circulars are to be delivered by January 30th, 1880. After explaining the plans and purposes of the proposed federation, the committee say:

"The matter now rests with the trades. The word 'federation' has been on the lips of most of the trades for a considerable number of years. Much valuable time has been occupied and money spent in preparing the various schemes which have previously been before the unions. You now have a practical proposal before you. Let your decision, whatever it may be, settle the question for a time at least, and allow us to turn our attention to other important matters upon which we can agree. We have only to reiterate this advice,—do not think you can ever have a federation, worthy of the name, except it is based on sound financial principles."

DISSENTING CHURCH-BUILDING NEWS.

Finchley.—A new Baptist chapel has just been opened at the corner of Dale Grove, North Finchley. It has been erected by Messrs. Staines & Son, builders, Great Eastern-street, from the designs, and under the superintendence, of Mr. Morton M. Glover, architect, London. It is Gothic in style, the walls being of Kentish ragstone, with Bath stone dressings. The roof is of hammer-beam construction. Four vestries, with school-room over, are placed at the western end, behind the pulpit, but the building is so constructed, that, when more accommodation is needed and new school-rooms are built, the space now occupied by these can be added to the chapel. The accommodation at present is for 400 persons, without the galleries, which can be added at a future time, and the cost is about 4,000*l.*

Hanley. — The new Mission-hall in Union-street, in connexion with the Tabernacle Congregational Church (Rev. T. K. Higgs, M.A., pastor), was opened on the 3rd instant. The building stands in a densely-populated cottage quarter, and to be somewhat akin to its surroundings, the style adopted by the architect is plain Jacobean, relying for some picturesqueness on a varied outline. The present accommodation is for about 300 hearers, but provision has been made by which the north wall may in future be converted into a nave arcade (by simply removing the windows and walling between the piers), and a north aisle erected, with nearly 100 additional sittings, and with a second vestry or class-room beyond. The building is faced outside with the local red pressed bricks, and covered with red tiles, local bed stone being used. Internally it is lined with white brick, with red brick dado and strings. Mr. Sugden, of Leek, is the architect, and the works have been executed by Mr. G. Ellis, builder, of Hanley. The moulded bricks were supplied by Mr. Jabez Thompson, of Northwich, the terra-cotta by Messrs. Miles & Woodward, and the lead lights by Messrs. Brown & Boreham. The building is heated by the hot-air apparatus of Messrs. Haden, of Trowbridge and Manchester.

Books.

A Handbook to the Bible: being a Guide to the Study of the Holy Scriptures, derived from Ancient Monuments and Modern Exploration. By F. R. CONDER, C.E., and Lieutenant C. R. CONDER, R.E., late Commanding the Survey of Palestine. London: Longmans & Co.

THIS is a large book in a little space, and includes the results of much reading and travel. Mr. F. R. Conder, who is well and favourably known in journalistic circles, has long studied the subject, and Lieutenant Conder, his son, has had special opportunities in the Holy Land to fit himself for the production of the work. Its object is to lay before the students of Scripture, in an accessible form, the main results of the various important researches which have been carried on during the present century. The chronological arrangement is based on a careful collation of the Hebrew and Greek texts of the Bible; on the study of those latent references of Josephus which no copyist had any motive for altering; and on a comparison of those Biblical pedigrees which give five collateral lines from Jacob to the contemporaries of Moses, and four from that generation to the time of David. Such long-debated questions as that of the period of the abode of the Israelites in Egypt are elucidated by this application of the method of the genealogist to the unbroken lines of recorded descent; as it is contrary to experience to imagine that as many as fourteen generations can have succeeded each other in 215 years. They are thus led to the conclusion, in this matter, that the Hebrew text is more accurate than the Septuagint.

The account of the weights, measures, and moneys of Palestine is based on the comparison of definite statements of the great Aramæan and Arabic writers with the weights of existing coins, and with the levels and dimensions of the Temple area at Jerusalem, and of the Galilean synagogues, as well as with itinerary distances. This is a particularly interesting and valuable part of the book. Every coin mentioned by name in the Bible, as well as a series of Hebrew coins, from one bearing the name of Eliashib "the Priest," down to the procuratorship of Pontius Pilate, have been drawn from examples now in the British Museum and elsewhere.

The ritual of the Temple has been illustrated from the full details preserved in the Mishna and arranged by Maimonides.

The physical and geographical description of the country is based on personal observation, and on the Trigonometrical Survey and other professional labours carried out by the various officers of Royal Engineers who have conducted explorations in Palestine during the last fifteen years. The maps will be found to contain much novel information, and will serve as a guide to the use of the large engraved survey map now in course of publication by the Palestine Exploration Fund.

It has been the main object of the writers, as far as possible, to avoid every expression of opinion, whether their own or that of any school of thinkers; and to supply first, facts, and secondly, careful references, by which the citation of those facts may be verified, and the inferences from them traced by the reader himself to the legitimate result. We can warmly commend the book, and augur for it a long-continued sale.

VARIORUM.

A NEW issue in parts has commenced of "Old and New London," an important and interesting work, of which we have before now spoken. With the first number of the new issue the publishers, Messrs. Cassell & Co., have given a capital map of modern London, worth more than the cost of the number.——The *Quiver* has taken the shape of a purely monthly publication, admitting consequently of improved arrangements. The first part thus issued is good and cheap.——The *Magazine of Art* has been permanently enlarged, and the proprietors offer money prizes to be competed for by art-students. ——The first volume of the *Boy's Own Paper* has been issued as the "Boy's Own Annual." It makes a handsome volume, containing an immense amount of amusing and wholesome reading, with no end of illustrations, and all for a few shillings. The facts that it is edited by Jas. Macaulay, M.D., and published at the *Leisure Hour* office, are sufficient guarantee.—— The *Richmond and Twickenham Times* is doing

good service to the cause of sanitation in the valley of the Thames by exposing and calling public attention to some of the worst of the plague-spots that still exist, and are a source of continual danger to the health of many favourite suburban residential localities. The sanitary condition of certain portions of Isleworth has long been a standing disgrace to the urban sanitary authority of Heston and Isleworth, which was created a local government district more than four years ago. In the Irish portion of the village the dangerous overcrowding and the utterly uninhabitable condition of many of the houses are notorious, but no attempts are made to abate the nuisance, which was recently and graphically described by our contemporary.—— We get a paragraph on "Technical Education on the Continent" from *Cassell's Technical Educator* for November:—"The great number and variety of the sets of models for teaching practical art which are published on the Continent show their extensive use in the schools and the appreciation of the teachers. Such methods of illustration are not, however, confined to the mechanical arts, nor is the education of the workman on the Continent limited to the precise branches which he may require in his occupation. This arises from the circumstance that he has overcome the rougher and more irksome portions of study in his youth, and thus in maturer years he has time and mind to spare, so that as he passes through the garden of this world, he need not spend all his time in simply gathering sticks for his immediate use as fuel, but retains enough of the freedom or elasticity of youth to rejoice at the sight of the lovely flowers which ornament his path, to gather them and examine into their wonderful structure; he has time to study the elaborate construction of his own frame, and the natural history of the bird which gaily floats past him in the air. These studies tend to elevate and refine; they give the life of an artisan an aim beyond hewing wood and drawing water; they give him sources of happiness and amusement which he can take up after his day's toil,—amusements which can be pursued *at home, and in which his wife and children can partake*,—amusements which, as he walks to his work next morning, afford him happy reflection, thus causing him to meet his fellow-men with a cheerful and contented mien: how different from that of the man who in his shopmates only sees the boon-companions of the previous evening's carousal, on the details of which each in his sober moments looks back with shame! There is more religion, more morality, brought about by this popularising of science than many persons think. The man who has made the works of God his study during the week will not waste the morning of the Sabbath-day in listless idleness and the evening in smoking and drinking. He will look upon it as a day when, together with his family, he may undisturbedly contemplate God's works, and walk hand-in-hand to the house of prayer, realising the truth of the text, "Man doth not live by bread only, but by every word that proceedeth out of the mouth of the Lord doth man live." The subject of physiology is one of importance in the instruction of working men. We see many who, when a hinge of a door in their house happens to have given way, a board of the floor becomes loosened, or an article of furniture out of order, bring home with them the necessary screws, nails, &c., and at once set about repairing; but, owing to the neglect in their education, they know nothing of the "house they live in," the body in which their Creator has placed that spirit with which he has endowed them, and for the care of which he holds them responsible. They will learn that temperance in food and drink, cleanliness, and proper exercise will double the value of their own lives and those of their children."

Graving Docks in the Thames.—The works for the reconstruction and enlargement of Messrs. Fletcher, Son, & Fearnall's Upper Union Graving Dock, Limehouse, are now being proceeded with from the designs and under the direction of Mr. E. C. Homer, C.E., of Hackney It is proposed to lengthen the dock so that when finished it will be one of the largest on the river. The facilities afforded ships entering and leaving the dock will be greatly improved, as on either side of the entrance there will be a jetty extending well out into the river. The walls will be constructed in brickwork with a concrete backing, and the dock bottom in concrete 6 ft. in thickness, with a timber flooring.

Miscellanea.

Society of Arts.—The programme of this society for its 126th session has just been issued. It gives a list of the papers and lectures for the session, so far as they have been arranged. The following are the papers to be read at the evening meetings previously to Christmas:—November 26—"Suggestions for Dealing with the Sewage of London," by Major-general H. Y. D. Scott, C.B., F.R.S. December 3—"Apprenticeship: Scientific and Unscientific," by Sylvanus P. Thompson, D.Sc., professor of Applied Physics at University College, Bristol. December 10—"Art Vestiges in Afghanistan; the Results of some Recent Explorations in the Jellalabad Valley," by W. Simpson. December 17—"The Panama Canal," by Captain Bedford Pim, R.N., M.P. The dates of the papers after Christmas are not announced, but the following are among the subjects to be treated:—"Domestic Poisons," by Henry Carr; "Gas Furnaces and Kilns for Burning Pottery," by Herbert Guthrie, C.E.; "The Utilisation of Slag," by Charles Wood; "Art in Japan," by C. Pfoundes; "The Trade and Commerce of the Yenisei," by Henry Seebohm; "Modern Autographic Printing Processes," by Thomas Bolas, F.C.S.; "The History of the Art of Bookbinding," by Henry B. Wheatley, F.S.A.; "Art Ironwork," by J. W. Singer; "The History of Musical Pitch," by A. J. Ellis, F.R.S.; "The Recent History of Explosive Agents," by Professor Abel, C.B., F.R.S.; "Ireland and its Resources," by C. G.W. Lock; "The Future of Epping Forest," by William Paul, F.L.S. Three courses of "Cantor Lectures" are to be given. The first course is by Dr. Charles Graham, F.C.S., F.I.C., Professor of Chemical Technology at University College, London, on "The Chemistry of Bread and Bread-making"; the second, on the "Manufacture of India-rubber and Gutta-percha," by Thomas Bolas, F.C.S.; the third, by R. W. Edis, F.S.A., on "Art Decoration and Furniture." The first meeting of the session will be held on the 19th inst., when the opening address will be delivered by Lord Alfred S. Churchill, chairman of the council.

The Late Mr. George Smith, of Pimlico. The will (dated July 31st, 1874), with two codicils (dated August 7th, 1874, and March 3rd, 1876), of Mr. George Smith, formerly of Pimlico, builder and contractor, but late of Paddockhurst, Sussex, who died on August 27th last, was proved on the 15th ult. by Mr. John Clutton and Mr. Henry Skrine Law Hussey, the executors, the personal estate being sworn under 200,000*l*. The testator devises the Paddockhurst estate, with part of the Balcombe estate, to the use of his wife, Mrs. Charlotte Predice Smith, for life, with remainder to his eldest surviving son, David Macdonald Smith. After making bequests to his executors, nephew and niece, medical attendant, brother and sister, he leaves the residue of his property, real and personal, upon trust for his wife for life, and then for his five surviving children, with a share, upon trust, for the husband and children of his deceased daughter.

Town Refuse applied in the Reclamation of Waste Land.—On the invitation of the Health Committee of the Glasgow Town Council, a numerous company visited Houston Moss, Renfrewshire, on the 28th ult. The Corporation have obtained a lease of this stretch of waste land for thirty-one years, and are at present engaged in its reclamation. Over the moss a railway has been laid, and by this means the refuse from the city is distributed over its surface. The operations, which give employment to a considerable number of men, have already resulted in the taking in of about fourteen acres, which have this year yielded a good crop of potatoes.

The Crace Collection.—We are glad to learn that the trustees of the British Museum have purchased Mr. Crace's collection of maps, plans, and views of London, which has been on view for some months at the South Kensington Museum. We have more than once referred at length to the great value and interest of the collection, and have suggested its purchase on behalf of the public.

Rebuilding of Anderton's Hotel.—Let us add to our notice of this rebuilding that the floor in the crypt is of Arrowsmith's "Solid" Parquet; and that borders of the same have been laid in the Masonic and other rooms.

The Sanitary Condition of Board Schools.—It is not encouraging to sanitary reformers to learn that the quite recently erected and very expensive Board school in Greystoke-place (a narrow passage leading from Fetter-lane to Cursitor-street) has had to be temporarily closed owing to an outbreak of fever, in some part due (it is alleged by Dr. Sedgwick Saunders, Medical Officer of Health for the City) to its unsanitary condition. In reference to the subject of school sanitation generally, Dr. Saunders, strongly condemning the trough-closets which have been so largely used in Board and other schools, says, in a report to the City Commissioners of Sewers, "Under all and any circumstances this objectionable method of removing excreta is offensive to the senses, and as I have before advised, at particular seasons, such as a cholera visitation, &c., would be highly dangerous to health; they therefore should be only tolerated on the score of economy when the strictest precautions are observed for their effective flushing twice a day by a competent and trustworthy attendant. There is no difficulty whatever in providing trapped pan closets for children of all ages, and well-known mechanical appliances can be adapted for the cleanly and decent use of the same by an automatic apparatus, beyond the control of the most mischievous or wilful." It is within our own experience that where the school caretaker is negligent, these troughs are sometimes allowed to get quite full before being flushed.

Warning of Fire.—Various automatic arrangements to give warning of the commencement of a fire on premises have been devised from time to time. The last has been devised by M. Amédée Charpentier, and is described in *Galignani*. The apparatus is extremely simple, and its efficacy has been tested on many occasions. It consists of two fine copper wires, that is to say, good conductors of electricity, covered with a thin coating of some isolating substance which melts at a slight heat, or volatilises immediately, without leaving any adherent residue. The two wires thus prepared are placed side by side, and only separated by the isolating substance. Their length may be practically unlimited, according to the extent of the locality in which they are employed, whether houses, factories, workshops, hospitals, schools, &c. They are so fine that they may be fixed round a door, window, curtains, articles of furniture, &c., without being perceived, more especially if they are coloured the same shade as the groundwork they are applied to. The principle of their action is that when the isolating surface is melted the two wires come in contact and complete the circuit of a battery with which they are connected, and a series of alarm-bells are immediately sounded. A further security is afforded by the fact that these fine wires are knotted at frequent intervals, for it might happen that the heat which dissolved the coating might twist the wires apart, and thus the desired effect be prevented. With the knots such a result is impossible, as not only does the isolating substance melt, but the heat expands the metal so as to insure contact.

Waves and Currents of Industrial Progress.—This was the title of an interesting lecture delivered by Mr. G. Phillips Bevan, at the City of London College, on the 30th ult. After tracing the causes which are mainly at work in affecting the industrial progress of countries, Mr. Bevan went on to speak of particular branches of industry and the decline in them which has taken place in several parts of the country. Barrow-in-Furness and Crewe in particular afforded remarkable illustrations of an almost phenomenal accretion of prosperity to districts which a few years ago were unknown. Middlesbrough gave another case in point. Fifty years ago it was a "town" of a single house; suddenly, in the year 1850, when beds of ironstone were discovered in the neighbourhood, it sprang into one of 7,000, and has at the present day 70,000 houses. If, moreover, the new method of dephosphorising iron,—one of the latest scientific introductions,—turned out commercially successful, there was no knowing, said the lecturer, to what size Middlesbrough may grow within the next twenty years.

Art Exhibition in Glasgow.—On the 28th ult. the St. Mungo Art Society opened their fourth annual exhibition in the hall of the Rainbow Hotel. The exhibits number 106, of which forty are in oil and sixty in water-colours.

The Artisans' Dwellings Act and Overcrowding.—The Howard Association, in a circular just issued on overcrowding and crime, thus refers to Mr. Cross's Act:—"The large amount of overcrowding, both in town and country tenements, is a most fruitful source of crime and vice. Yet its remedy is a subject of the utmost practical difficulty. Mr. Cross, as Home Secretary, devoted most earnest endeavours to grapple with it, by means of the Artisans' Dwellings Act. But, unfortunately, this Act has in great degree become a failure, and has afresh exemplified the evils of mere permissive legislation. It was rendered applicable to all towns of 25,000 persons or upwards; that is to say, to about eighty towns. Recent able articles in the London and provincial and other journals, show that in about sixty towns it remains a dead letter. In eleven it has led to discussion. In two or three it has resulted in demolition of buildings, but not in their erection. So that it has even been perverted to great mischief. For it has both increased, by the demolitions, the previous overcrowding, and also, the demolitions have involved enormous expense."

Ely Cathedral.—A new lectern has been placed in the cathedral under the following circumstances. In 1850 Professor Goertz, of Louvain, designed new stalls for the choir of Antwerp Cathedral. In 1851 Mr. John Sutton, fellow commoner and organist of Jesus College, Cambridge (afterwards Sir John Sutton), visited Goertz at Louvain, and inspected the stall-work in the studio and cathedral; he was so struck with one of the stall-ends that he asked Goertz to make him a *facsimile*. Goertz took a saw, cut it off, and presented it to Mr. Sutton, saying he would have a copy made for the cathedral. Mr. Sutton brought the figure to Cambridge, but subsequently went to reside at Bruges, where he died. Before leaving he presented the figure to Mr. R. R. Rowe, who has now given it as a nave lectern to Ely. The figure represents a king placing his crown and money-bags under his feet and giving himself to a life of contemplation.—*Times*.

Liverpool Borough Engineership.—We understand there were 101 applicants for the post of Borough Engineer, and that the list is composed as follows:—

Civil Engineers in private practice	31
Borough Engineers and Surveyors	18
Assistant ditto	5
Architects and Surveyors	6
Resident and Superintending Engineers of Public Works	19
Architects' and Surveyors' Assistants and Draughtsmen	7
Contractors' Engineers	11
Clerks of Works	3
Director of Ironwork	1
Nail Manufacturer	1
	101

The numbers were reduced to 20 at the first sitting, and to six at the second, the names being:—Hart, St. Helen's; Gordon, Frankfort; Dunscombe, Derby; Barry, Liverpool; Blandy, London; Stayton, Chelsea. These were reduced at the next meeting to two,—Mr. G. J. Barry, of Liverpool, and Mr. C. Dunscombe, of Derby. Mr. Dunscombe was eventually elected, as we announced last week.

Something like a Clock!—At the Industrial Exhibition of Chaux-de-Fonds (canton of Neufchâtel), recently held, a clock was exhibited which is described as a perfect marvel of mechanism. It indicates hours, minutes, seconds, and half-seconds, the seven days of the week with their planets, each day of the month as it comes round, the decades, the twelve months with the signs of the zodiac, the number of days of the respective month, the sun's peribelium, the phases of the moon, the solar system, sunrise and sunset according to the calendar, the four seasons, the equinoxes, and the solstice. On the number VI of the dial are two chronometers of different systems, and the pendulum is a barometer. The clock strikes the hours and quarter-hours. After striking the hour it plays a tune, and by means of a mechanism the eight pieces of music which the work contains may be interchanged. The name of the artist workman is Rapin.

Pictures in Progress.—Mr. Frith, R.A., is engaged upon another serial work likely to interest the town. It will illustrate A Commercial Fraud, and one of the pictures represents a trial at the Old Bailey, and includes portraits of some well-known magistrates and barristers.

Metropolitan Asylums Board.—At a meeting of this Board, on the 1st inst., Mr. Bradshaw moved a resolution to the effect that an architect to the Board should be appointed. He said that the fees paid to architects during the past three years amounted to 1,900*l*. In answer to a question Mr. Bradshaw said he did not mean the appointment of an architect at a fixed salary. Mr. Gilsworthy pointed out that they had had several solicitors, and he thought with advantage. What would be the scale of fees on which they would pay the architect? The matter was full of difficulty. Mr. Standring did not understand the motion. The Holborn Union paid an architect a nominal fee of 30*l*. per annum, and if they wanted anything done the Guardians had to pay separately for it. The motion was withdrawn.

Hexham.—The Board schools here, after undergoing extensive alterations and improvements, were re-opened last week for teaching purposes. Internally, the buildings have been completely altered in their arrangements in order to obtain proper supervision by the head teachers in their various departments. Cap-rooms, lavatories, and teachers' rooms have been added, and considerable additions made to the amount of window area. A complete system of ventilation and heating has also been provided. The works have been carried out by the following contractors, viz.:—Mr. Dodd, mason; Mr. Dodd, joiner; Mr. J. Baty, slater; Mr. J. Rutherford, plumber; Mr. J. Dinning, painter and glazier; Messrs. Davidson & Spencer, heating and ventilating apparatus. Mr. Edward Snowball acted as clerk of the works; and Messrs. Oliver & Leeson, of Newcastle-on-Tyne, were the architects.

City of London School.—There seems likely to be considerable delay in the erection of this proposed pile of buildings, even if it is ever erected. The promoters have not the money in hand to proceed with the works, the Act of Parliament empowering the Corporation to rebuild the school (owing to some oversight), containing no clauses to sanction the raising of the necessary funds. Some consideration ought surely to have been given to "ways and means" before giving so much needless trouble to competitors. We will not yet believe the report.

Builders' Benevolent Institution.—The thirty-second anniversary dinner of this Institution, held on Thursday evening, was, we are glad to be able to say, very successful, the subscriptions and donations announced amounting to 860*l*., of which no less a sum than 425*l*. was accounted for on the list of the chairman, Mr. F. J. Dove, President of the Institution, who very ably fulfilled the duties of the chair. We shall give a report of the proceedings next week.

Sion College.—The City Lands Committee of the Corporation have entered into an arrangement with the trustees of Sion College,—an ancient corporation of the clergy of the City, and certain other parishes in the diocese of London, by which a new hall and library will be built for the Fellows on the Victoria Embankment at the corner of the intended new street from the Embankment to Fleet-street, in lieu of the present college in London-wall.—*City Press*.

Butterton, near Leek.—A new spire has just been added to this church, as a memorial by the late Mrs. Byrone to her deceased aunt, Miss Ellen Gaunt. It is built of stone from the Sheen quarries in the neighbourhood by Messrs. Bassett & Wilson. The architect was Mr. Sugden, of Leek.

The "Observer" Office.—In mentioning this among the works of the late Mr. David Moore, the words "very recently" should not have been used. It was rebuilt in 1864. In later times the building was altered and rearranged for larger operations by Mr. T. Roger Smith.

TENDERS

For memorial church, Macallwch Park, Glasbury, Radnorshire. Messrs. Haddon Bros., architects:—

Baker & Son	£2,500 0 0
King	2,388 0 0
Edwards	2,380 0 0
Price	2,300 0 0
Stephens & Bastow	2,266 0 0
Welsh	2,145 0 0
Williams	2,000 0 0
Bowers	1,990 0 0
Inwood	1,971 0 0
W. & J. Crowe (accepted)	1,947 0 0

For West Ham Union extension, Essex. Mr. Lewis Angell, architect. Quantities by Messrs. R. L. Curtis & Sons:—

Contract No. 1.

Webster	£14,499 0 0
Perry & Co.	14,359 0 0
Crisp	13,987 0 0
Jones & Co.	13,850 0 0
Wall	13,507 3 9
Prout	13,501 0 0
Grimwood	13,463 6 0
Morter	13,430 0 0
Crabb	13,329 0 0
Atherton & Latta	12,834 0 0
Cox (accepted)	12,680 0 0
Nightingale	12,733 0 0
Hatton	11,860 0 0
Gregar	11,649 0 0

Contract No. 2.

W. & H. Castle	£18,639 0 0
Jones & Co.	18,092 0 0
Palmer	18,071 0 0
Enor, Julian, & Co.	17,970 0 0
F. & F. G. Wood	17,796 0 0
Garlick	17,730 0 0
Morter	17,521 0 0
Sheffield & Prebble	17,397 0 0
Nightingale	17,238 0 0
Cox	17,223 0 0
R. & E. Smith	17,010 0 0
Prout	16,995 0 0
Perry & Co.	16,869 0 0
Holland	16,350 0 0
Crabb	16,300 0 0
Atherton & Latta (accepted)	16,260 0 0

Small-pox Hospital.

Webb	£3,475 0 0
Wood	3,145 0 0
Castle	3,100 0 0
Jones & Co.	3,033 0 0
Perry & Co.	2,992 0 0
Linfield	2,957 0 0
Morter	2,892 0 0
Smith	2,863 0 0
Garlock	2,873 0 0
Palmer	2,849 0 0
Crabb	2,765 0 0
Holland	2,710 0 0
Atherton & Latta (accepted)	2,660 0 0
Judd	2,649 0 0

For culverting in a portion of the Stamford Brook portion of the sewerage works at Acton. Mr. C. Nicholson Lailey, surveyor:—

Nowell & Robson	£834 4 0
Bell	686 18 8
Simmons	676 10 0
Killingback	657 2 3
Etheridge	612 17 4
Nobbs & Co.	584 10 0
Smith	580 6 4
Taylor	546 10 4
Hayes & Co.	539 17 0
Neave	533 15 0
Bloomfield	513 0 0
Meston (accepted)	490 0 0
Small & Sons	463 15 0

For sewers at Acton Green. Mr. C. Nicholson Lailey, surveyor:—

Killingback	£839 5 0
Nowell & Robson	723 10 0
Simmons	640 5 0
Bloomfield	603 5 2
Etheridge	599 2 0
Neave	580 2 6
Narroway	561 5 0
Taylor	549 5 0
Bell	504 10 0
Smith	446 0 0
Hayes & Co.	434 16 3
Nobbs & Co.	409 10 6
Small & Sons	401 5 10
Stodhard	380 0 0
Meston (accepted)	328 0 0

For pair of semi-detached houses at Blackwater-road, Eastbourne, for Messrs. Geo. Tolhurst and James Noakes. Mr. A. Crisford, architect:—

Harding	£4,748 0 0
Stevens	3,684 0 0
Fowler	3,400 0 0
Cornwell (accepted)	3,150 0 0

For pulling down and rebuilding 24, Paris-street, Lambeth. Mr. A. Parnacott, architect:—

Davis & Drew	£335 0 0
Edwards	325 0 0
Scott	300 0 0
Elliott	295 0 0

For alterations and additions to Nos. 33 and 34, Queen-street, Brompton. Mr. George Edwards, architect:—

King	£276 0 0
Stimpson & Co.	265 0 0
Richardson	255 0 0
Croft (accepted)	220 0 0

For water works, Ludlow. Mr. T. Carley, engineer. Quantities supplied:—

Powis, Parker, & Morris	£5,619 0 0
Morgan	4,972 14 7
Dowell & Co.	4,551 14 0
Cowder & Sons	4,440 0 0
Grosvenor	4,364 9 9
Russell	4,299 16 10
Crow	4,168 0 0
Dawson	4,080 0 0
Walker	3,997 3 4
Nevett Bros.	3,940 0 0
Mackey	3,715 14 0
Hine	3,680 0 0
Davis (accepted)	3,655 15 3
Williams & Jenkins	3,651 18 2

Accepted for the restoration, after fire, of the Wiltshire Brewery, Hackney-road. Messrs. Scamell & Colyer, engineers:—

T. W. Smith & Son.
For Plant, Bennett & Son.
For Refrigerators, Lawrence & Co.

For alterations, painting, and decoration at the National Provident Institution, Gracechurch-street. Mr. T. E. Knightley, architect:—

Mansfield & Sons	£1,200 0 0
Kiddle & Son	1,195 0 0
Green & King	1,166 0 0
Pitman & Son	1,145 0 0
Colls & Son (accepted)	975 0 0

For carcass of a villa-residence at Sydenham. Mr. J. Hunter, architect:—

Alflatt & Thorn (accepted)	£335 0 0

For erection of new meter-house, workshops, and stores for the Folkestone Gas and Coke Company. Mr. Burgess J. Reeve, architect. Quantities supplied:—

		Credit old materials.
Brooks	£2,865 0 0	£85 0 0
Petts & Son	2,768 0 0	45 0 0
Payn	2,740 0 0	20 0 0
Clemmans	2,700 0 0	100 0 0
Hood	2,600 0 0	
Webster	2,670 0 0	74 0 0
Baker	2,660 0 0	77 0 0
Camburn & Co.	2,553 2 6	60 0 0
Prebble	2,532 0 0	
Dunk	2,528 0 0	50 0 0
Reason	2,450 0 0	45 0 0
Slade	2,400 0 0	50 0 0
Holdorn	2,400 0 0	60 0 0
Unwin (accepted)	2,358 0 0	45 0 0
Theobald	2,181 0 0	36 0 0

For erection of four cottages in Marshall-street, Folkestone. Mr. Burgess J. Reeve, architect:—

W. H. Hood	£350 0 0
Petts & Son	682 0 0
J. Hood	700 0 0
Slade	700 0 0
Reason	698 0 0
Prebble	694 0 0
Hall	675 0 0
Camburn & Co.	650 0 0
Philpott	646 0 0
Keeler	630 0 0
Jenner	620 0 0
Huson	600 0 0
Sims (accepted)	616 0 0

For alterations and additions to Wingate Villa, Canterbury-road, Folkestone, for Mr. T. G. Morrison. Mr. Burgess J. Reeve, architect:—

Petts & Son	£200 0 0
Dunk	180 0 0
Brooks (accepted)	172 0 0

For erecting a villa-residence in the Epping High-road, for Mr. J. Wyatt. Mr. H. Foster, architect:—

Somerville & Hill (accepted)	£1,360 0 0

For sewering, levelling, paving, &c., streets at North Woolwich, for the East Ham Local Board. Mr. H. Savage, surveyor. Quantities supplied:—

Nobbs & Co.	£5,600 15 11
Brickell	5,313 0 0
J. G. B. Marshall	5,120 14 5
Toole	4,946 0 7
Holloway	4,925 9 7
H. A. Marshall	4,814 18 8
Botterill	4,710 0 0
Bell	4,664 18 4
Marney	4,568 0 8
Rutty	4,499 12 11
John Jackson	4,268 3 9
Joseph Jackson (accepted)	4,224 11 5

For the erection of house, lodge, stables, and two cottages, Harefield, Romsey, for Mr. Thomas Strong. Mr. W. H. Mitchell, architect:—

Sims Bros.	£8,585 0 0
Mitchell Bros.	8,337 15 1
Pusey	8,089 1 10
Jones & Co.	7,723 0 0
Chapman	7,475 0 0
Stephens & Bastow	6,996 0 0
Egg & Hobbs	6,960 6 6
Stiff	6,784 0 0
Crook	6,737 0 0
Lawson & Stanley	6,645 8 8
Rowland	6,611 5 0
Sander	6,580 0 0
Stevens & Son	6,529 0 0
Bull & Son	6,430 0 0
William	6,225 13 11
Hale & Sons	6,185 0 0
Jenkins & Son (accepted)	5,989 0 0

For residence and stabling (exclusive of boundary walls, gates, &c.), Shorncliffe-road, Folkestone, for Mr. Medhurst. Mr. Reginald Pope, architect:—

Payn	£3,390 0 0
Holdom	1,875 0 0
Petts	1,783 0 0
Slade	1,595 0 0
Hood	1,580 0 0
Prebble	1,560 0 0
Clements	1,584 0 0
Camburn	1,530 0 0
Saunders	1,520 0 0
Baker	1,470 0 0
Moody (accepted)	1,446 0 0
Reason (withdrawn)	1,395 0 0

For lodge, Torre-park, Ilfracombe, for Mr. R. Huxtable. Mr. W. Morgan Robbins, architect. Quantities by the architect:—

Horwood (for portion of works) accepted	£728 0 0

For detached villa, Torre-park, Ilfracombe. Mr. W. Morgan Robbins, architect. Quantities by the architect:—

Horwood (accepted)	£330 0 0

For erecting and completing Stepney Emmanuel Mission Room, Ronald-street, Stepney. Mr. George Legg, architect:—

	Built in two portions.	Built at one time.
Conder	£1,694	£1,594
Morter	1,163	1,576
Little	1,667	1,571
Shurmur	1,647	1,539
F. & F. J. Wood	1,593	1,513

For shop front, 166, Shoreditch, for Mr. Richard Day:—

Shurmur	£250 0 0
Salter	248 0 0

For villa-residence in Buckingham-road, Woodford, Essex, for Mr. J. C. Aukland. Mr. J. R. Rogers, architect:—

Good Bros. (accepted).

For alterations at 274, Oxford-street, for Mr. Linscott. Mr. Daniel R. Dale, architect:—

Woodland (accepted)	£107 0 0

For the erection of four houses and shops on the Grove Estate, Leytonstone, for Mr. Stoffell. Mr. D. R. Dale, architect:—

Hoare (accepted)	£2,000 0 0
Hughes	2,880 0 0

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